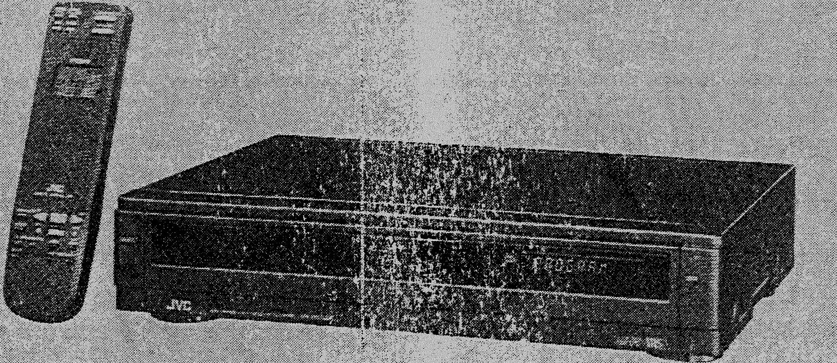
JVC

SERVICE MANUAL

STEREO VIDEO CASSETTE RECORDER

HR-D910E/EG/EK



Hi-Fi

VHS
PAL

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-D910E/EG)*

GENERAL

Power requirement : AC 220 – 240 V∿, 50/60 Hz
Power consumption : 34 W
Temperature : 5°C to 40°C (Operating)
: –20°C to 60°C (Storage)
Operating position : Horizontal only
Dimensions (WxHxD) : 435 x 94 x 339 mm
Weight : 5.7 kg
Format : VHS PAL standard
Tape width : 12.65 mm
Tape speed (SP) : 23.39 mm/sec
Tape speed (LP) : 11.70 mm/sec
Maximum recording time (SP) : 240 min. with E-240 video cassette
(LP) : 480 min. with E-240 video cassette

VIDEO

Signal system : PAL colour and CCIR monochrome signals, 625 lines/50 fields
Recording system : Rotary two-head helical scan system with slant double-azimuth combination video heads
Input : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output : 1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio : 43 dB (Rohde & Schwarz noise meter)
Horizontal resolution : 250 lines

AUDIO

Input : Mic:-67 dBs, high impedance, unbalanced
: AUDIO IN connector (RCA x 2): -8 dBs, 50 k-ohms, unbalanced
: AUDIO/VIDEO socket (21-pin Peri connector):-3.8 dBs. (CENELEC standard), 10 k-ohms, unbalanced
Output : AUDIO OUT connector (RCA x 2): -6 dBs, high-impedance load less than 1 k-ohm, unbalanced (100 k-ohms, load)
: AUDIO/VIDEO socket (21-pin Peri connector):-3.8 dBs. (CENELEC standard), high-impedance load less than 1 k-ohm, unbalanced

NORMAL AUDIO

Recording system : Longitudinal track
No. of audio channels : 1 (monaural)
Frequency range : 70 Hz to 10,000 Hz

Hi-Fi AUDIO

Recording system : Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels : 2 Hi-Fi audio channels
Frequency response : 20 Hz to 20,000 Hz
Dynamic range : More than 90 dB
Wow and flutter : Less than 0.005% WRMS

TUNER

Tuning system : Frequency synthesized tuner
TV channel storage capacity : 48 positions (+ AUX position "AU")
Channel coverage : VHF 47 – 111 MHz
111 – 300 MHz
302 – 470 MHz
(Hyper band for PAL)
UHF 470 – 862 MHz
Aerial output : UHF channel 36 (adjustable 32 – 40)

TIMER

Clock reference : Quartz-crystal
Programme capacity : 1-year/8-programme timer
Memory backup time : 60 min.

ACCESSORIES

Provided accessories : Aerial cable
Infrared remote control unit "R6" battery x 2
Optional accessories (EG) : VPV adapter VU-V120E
VPT adapter VU-V140E
Optional accessories (E) : VPS adapter VU-V110E
VPV adapter VU-V120E
VPS/VPV adapter VU-V100E
VPT adapter VU-V140E
VPS/VPT adapter VU-V150E

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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No. 82256
August 1991

Technische Daten

ALLGEMEIN

Spannungsversorgung : 220 – 240 V Wechselspannung, 50/60 Hz
Leistungsaufnahme : 34 W
Zulässige Umgebungstemperatur
Betrieb : 5°C bis 40°C
Lagerung : –20°C bis 60°C
Betriebsposition : Ausschließlich horizontal
Abmessungen (BxHxT): : 435 x 94 x 339 mm
Gewicht : 5,7 kg
Bandformat : VHS PAL-Standard
Bandbreite : 12,65 mm
Bandgeschwindigkeit:
(SP) : 23,39 mm/Sek.
(LP) : 11,70 mm/Sek.
Maximal-Spieldauer :
(SP) : 240 Min. mit E-240-Cassette
(LP) : 480 Min. mit E-240-Cassette

VIDEO

Signalsystem : PAL-Farb- und CCIR-Monochromsignale, 625 Linien/50 Halbbilder
Aufnahmesystem : Rotierendes Zweikopfsystem, Schrägspurabtastung mit im Winkel versetzten Köpfen, Dual-Azimut-Kombinationsköpfe
Eingang : 0,5 bis 2,0 Vss, 75 Ohm Ohm, unsymmetrisch
Ausgang : 1,0 Vss, 75 Ohm, unsymmetrisch
Störspannungsabstand : 43 dB (Rohde & Schwarz-Rauschmesser)
Horizontale Auflösung: 250 Linien

AUDIO

Eingang : Mikrofon: -67 dBs, hochohmig, unsymmetrisch
: AUDIO IN (2 Cinch-Buchsen): –8 dBs, 10 kOhm, unsymmetrisch
: AUDIO/VIDEO (21-pol. Eurobuchse): –3,8 dBs (CENELEC-Norm), 10 kOhm, unsymmetrisch
Ausgang : AUDIO OUT (2 Cinch-Buchsen): –6 dBs, hochohmig kleiner 1 kOhm, unsymmetrisch (100 kOhm Last) AUDIO/VIDEO (21-pol.
: Eurobuchse): –3,8 dBs (CENELEC-Norm), hochohmig kleiner als 1 kOhm, unsymmetrisch

NORMAL-AUDIO

Aufnahmesystem : Längsspur (Randspur)
Zahl der Kanäle : 1 (Mono)
Frequenzgang : 70 Hz bis 10.000 Hz

Hi-Fi AUDIO

Aufnahmesystem : Tiefschicht-Aufnahmesystem nach dem Stereo Hi-Fi VHS-Standard
Zahl der Audiokanäle : 2 Kanäle
Frequenzgang : 20 Hz bis 20.000 Hz
Dynamikbereich : Mehr als 90 dB
Gleichlaufschwankungen : Weniger als 0,005 % WRMS

TUNER

Abstimmsystem : Frequenz-Synthesizer-Tuner
Senderspeicher : 48 (plus AUX-Position "AU")
Empfangsbereich : VHF 47 – 111 MHz
111 – 300 MHz
302 – 470 MHz
(Hyperband für PAL)
UHF 470 – 862 MHz
Antennenausgang : UHF-Kanal 36 (32 — 40 einstellbar)

SCHALTUHR

Referenzfrequenz : Quarzsynchron
Kapazität : 1 Jahr/8 Programme
Gangreserve : 60 Min.

ZUBEHÖR

Mitgeliefertes Zubehör : Antennenkabel, Infrarot-Fernbedienung, R6-Batterie x 2,
Sonderzubehör (EG) : VPV-Adapter VU-V120E
VPT-Adapter VU-V140E
Sonderzubehör (E) : VPS-Adapter VU-V110E
VPV-Adapter VU-V120E
VPS/VPV-Adapter VU-V100E
VPT-Adapter VU-V140E
VPS/VPT Adapter VU-V150E

Die technischen Angaben beziehen sich, sofern nicht anders angegeben, auf die SP-Betriebsart.
Technische Änderungen vorbehalten.

1. The Instructions shown pertain specifically to the Model HR-D910E/EG. For detailed descriptions, be sure to consult the Instruction booklets of the other Models.
2. The following table lists the differing points between Models (suffixed HR-D910E, HR-D910EG and HR-D910EK) in this series.

Model / Item			HR-D910EG	HR-D910E	HR-D910EK
TV TUNER	Channel coverage	VHF	47 to 111 MHz	← *1)	No
			111 to 300 MHz	← *1)	No
			No	302 to 470 MHz	No
		UHF	470 to 862 MHZ	← *1)	← *1)
TIMER	Memory back-up time		60 min	60 min	Minimum 3 min
	VPS		Built-in	Option (VU-V110E)	No
TELETEXT	VPV		Option (VU-V120E) *2)	Option (VU-V100E) *3)	No
	VPT (with TOP)		Option (VU-V140E) *2)	Option (VU-V150E) *3)	Option (VU-V140E) *2)

Notes: **1) ← The same as model at left.*
**2) VU-V120E/VU-V140E without VPS*
**3) VU-V100E/VU-V150E with VPS*

NOTE: For a technical description, please refer to Technical Guide VTG82068 HR-D910/980 PAL.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

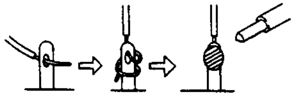


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

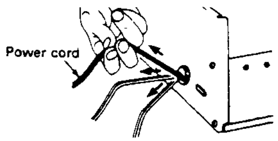


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

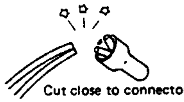


Fig. 3

       (2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

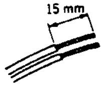


Fig. 4

       (3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

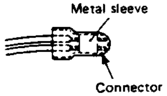


Fig. 5

       (4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

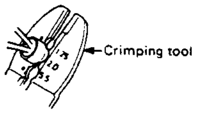


Fig. 6

       (5) Check the four points noted in Fig. 7.

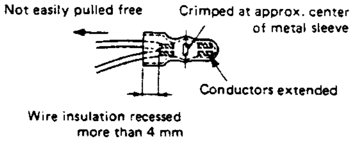

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

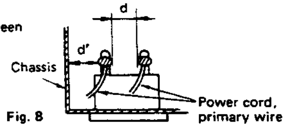


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

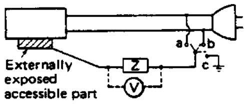


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

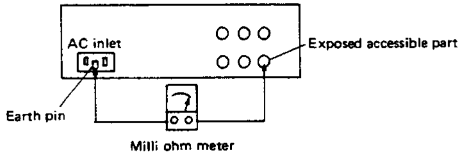


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

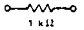
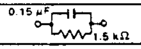
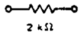
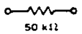
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	 1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING — DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

IMPORTANT (In the United Kingdom)
Mains Supply (240 V∿, 50 Hz only)

IMPORTANT

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with the following code:

Blue to N (Neutral) or Black
Brown to L (Live) or Red

If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or aerial.

Omkopplaren OPERATE på denna apparat är sekundärt kopplad och skiljer inte apparaten från nätet i läge OPERATE OFF.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

BEMAERK: I stilling OFF er apparatet stadig forbundet med lysnettet Hvis det ønskes fuldstændig afbrudt skai netledningen trækkes ud.

This unit is produced to comply with Directives 76/889/EEC, 82/499/EEC, 87/308/EEC and Standard IEC Publ. 65.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

WARNING

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in Eastern European countries (also called SECAM-East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

IMPORTANT: It may be unlawful to record or play back copyrighted material without the consent of the copyright owner.

VHS PAL HQ

- Only cassettes marked "VHS" can be used with this video recorder.
- HQ VHS is compatible with existing VHS equipment.

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How To Use This Instruction Manual

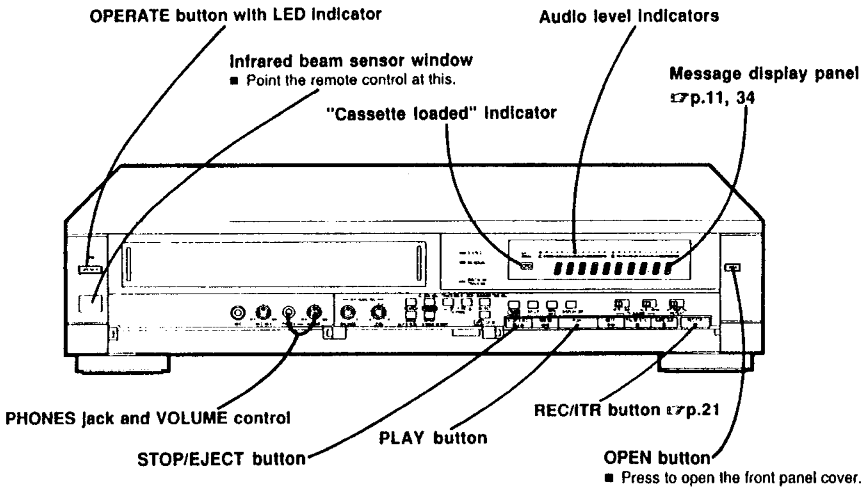
This instruction manual has been designed with both new and experienced users in mind. The first half offers detailed, step-by-step instructions for setting up your video recorder, and on using its basic functions. The second half provides instructions on the many other functions available on your video recorder. So just by following the instructions on the "Getting Started" and "Basic Operation" sections of this manual, you can master all of your recorder's basic functions, including timer-recording. Once you're sufficiently familiar with basic operation, or if you're already an experienced video user, you can move on to the more advanced functions introduced on the following pages. Related features have all been clustered together for easy reference, and their categories (playback, recording, timer, etc.) are easily recognisable by the symbol appearing in the page header. If you ever need to refer to another page for instructions or information, you will be told so by a ☞ mark pointing to the page number.

Remember, you must use your video recorder correctly to fully enjoy it. Please use this manual effectively. It's the surest and quickest way to unlock the full potential of your new JVC video recorder.

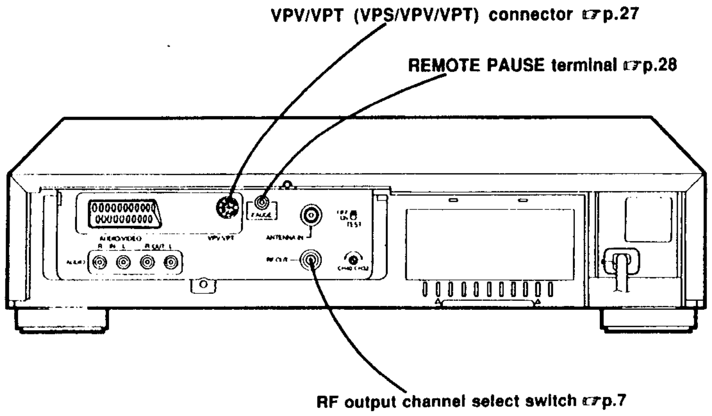
This instruction manual covers two model versions: "EG" and "E". Be sure to check which model you have purchased.
EG: VPS decoder built-in.
E: VPS decoder not built in. You must connect an optional adaptor to take advantage of VPS service. ☞p.27

Controls, Indicators, And Connectors

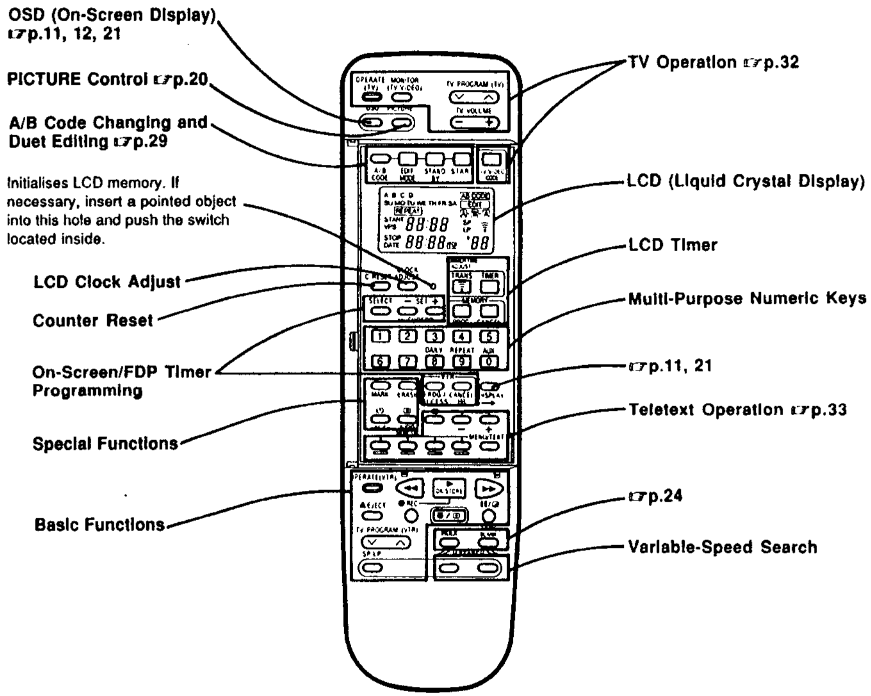
Front Panel


OPERATE button with LED indicator
Audio level indicators
Infrared beam sensor window
■ Point the remote control at this.
Message display panel ☞p.11, 34
"Cassette loaded" indicator
PHONES jack and VOLUME control
REC/ITR button ☞p.21
PLAY button
STOP/EJECT button
OPEN button
■ Press to open the front panel cover.

Back Panel


VPV/VPT (VPS/VPV/VPT) connector ☞p.27
REMOTE PAUSE terminal ☞p.28
RF output channel select switch ☞p.7

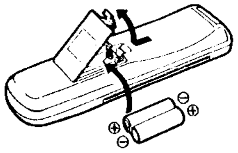
Wireless Remote Control


OSD (On-Screen Display) ☞p.11, 12, 21
PICTURE Control ☞p.20
A/B Code Changing and Duet Editing ☞p.29
Initialises LCD memory. If necessary, insert a pointed object into this hole and push the switch located inside.
LCD Clock Adjust
Counter Reset
On-Screen/FDP Timer Programming
Special Functions
Basic Functions
TV Operation ☞p.32
LCD (Liquid Crystal Display)
LCD Timer
Multi-Purpose Numeric Keys
☞p.11, 21
Teletext Operation ☞p.33
☞p.24
Variable-Speed Search

NOTE:
Some buttons have additional labels (mostly pictograms) for teletext operations. You will find instructions for these in the Instruction Manual of the teletext adapter.

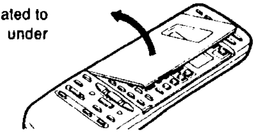
Installing Batteries

1. Open the battery compartment cover as illustrated.
2. Insert 2 "R6"-size batteries (provided) in the correct directions.
3. Replace the cover.



How To Use
The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets of JVC and other brands. ☞p.32.
- Point the remote control at the sensor window.
- The maximum operating distance of the remote control is about 8 m.

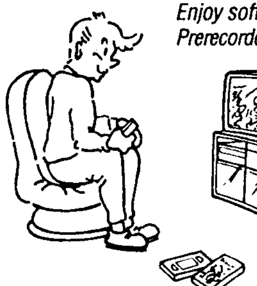
Open the lid as illustrated to access the buttons under the lid.

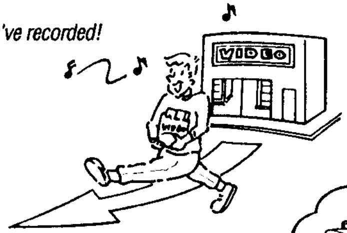


Getting To Know Your Video Recorder

The 3 Basic Ways Of Using Your Video Recorder

Enjoy software!
Prerecorded or things you've recorded!

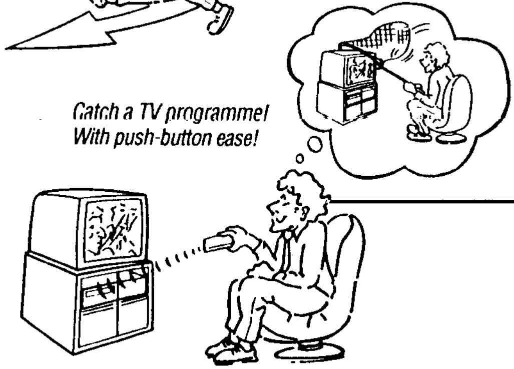




Playback

With the video recorder properly hooked-up to your TV set, viewing videos is as easy as pushing the Play button. Prerecorded VHS software is available just about anywhere, and your video recorder will let you enjoy it all. And, of course, you can enjoy those programmes you've recorded yourself too.

Catch a TV programme!
With push-button ease!



Record TV programmes while you're away.
Watch TV programmes when you want.

Recording

Just press the Record and Play buttons together on your remote control. The recorder will record whatever it is that you're watching. In other words, you can instantly "catch" a TV programme in progress to see it again later, show it to someone else, or keep it as part of your video library. Recording is possible for 4 hours in the SP (Standard Play) mode, and for 8 hours in the LP (Long Play) mode, on a single E-240 cassette.

THE LATE SHOW

Timer-Recording

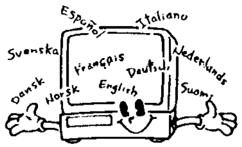
By using the built-in timer, you can set your video recorder to record TV programmes for you while you're asleep, while you're away, or while you're doing something else. Then you can watch those programmes later, whenever it's convenient, whenever you want. This is what's called "timeshifting", and now you can do it the JVC way.

Some Other Functions On Your Video Recorder

GOOD MORNING
Good Morning

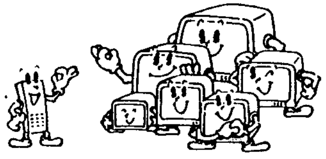
"Message" Display Panel

The video recorder "talks" to you from its message display panel. It's easy to understand what the recorder is doing at any time — a friendlier way to interact with your video deck.



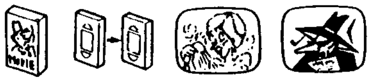
Multi-Language On-Screen Display

Ten languages to choose from. So you can check the engaged mode, program the timer, and more, while watching on-screen messages in your own language.



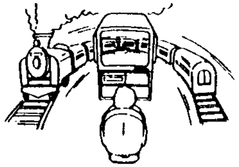
Multi-Brand-TV-Compatible Remote Control

Compatible with most major brands of televisions for basic control functions. Put an end to two-handed remote control.



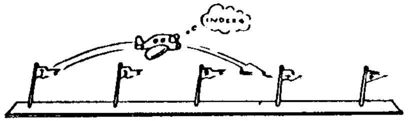
Picture Control

One-touch control over the type of video picture you want. Make it clearer, make it better for dubbing, make it softer, make it sharper — do it all with Picture Control.



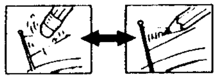
Hi-Fi Stereo Sound

Enjoy films with Hi-Fi stereo soundtracks just as you would in theatres. Use the built-in Sound-Multiplex decoder to record stereo or bilingual programmes.



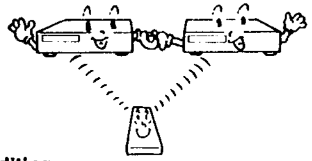
Index Search

Zooms to the index code number you specify. Easy location of index-coded programmes at the touch of a button. Index codes are automatically marked by the recorder at the beginning of each recording. With index mark/erase, you can also add or delete index codes as you wish.



Blank Search

Lets you find the beginning of a non-recorded section automatically when you want to record on a partially-recorded tape. No more blind searching. Automatically displays the tape's remaining time too.



Duet Editing

Synchronized editing control over two JVC video recorders using one remote control.

Making The Right Connections

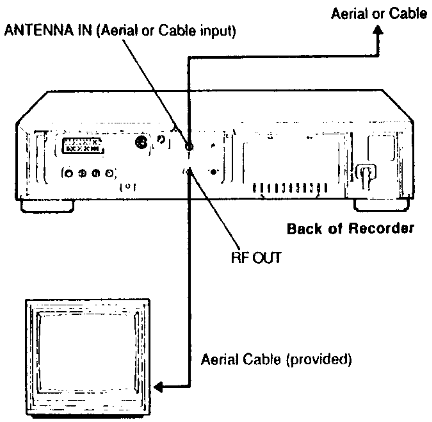
It's essential that your video recorder be properly hooked up for proper results. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

A RECORDER-TO-TV CONNECTION

RF CONNECTION

For TV sets without AV input terminals:

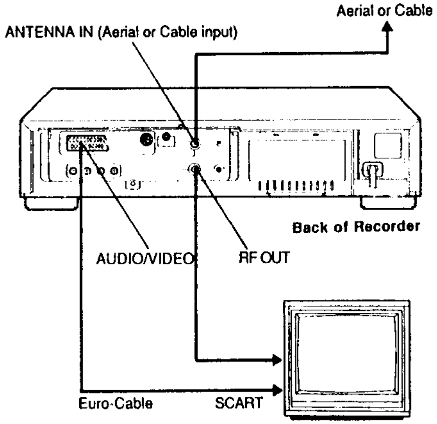
1. Connect the TV aerial cable to the recorder.
2. Connect the recorder to the TV's aerial terminal.



AV CONNECTION

For TV sets with AV input terminals:

1. Connect the aerial, recorder and TV as per "RF CONNECTION".
2. Connect the recorder to the TV's 21-pin SCART connector.



NOTE:

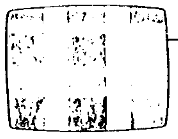
If your television is not stereo-capable, use the recorder's AUDIO OUT connectors to connect to an audio amplifier for Hi-Fi stereo sound reproduction.

B ADJUST VIDEO CHANNEL (UHF 36)

With an RF connection, the video recorder sends picture and sound signals through the connecting cable to your TV on UHF channel 36. Fine-adjust the RF converter to match your TV.

TEST SIGNAL

1. Turn on the recorder.
2. Set the TEST switch to ON.
3. Set your TV to UHF channel 36 and fine-adjust it until you bring in the two vertical white bars on the screen most clearly.
4. Reset the TEST switch to OFF.



NOTE:

If some interference noise is seen on the screen because of broadcasts on neighbouring channels, it is necessary to shift the video channel from UHF channel 36. This is possible for UHF channels 32 through 40. Consult your JVC dealer for making this adjustment.

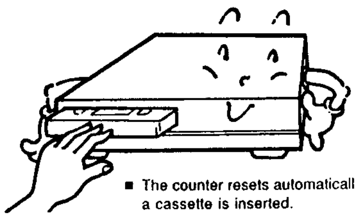
IMPORTANT:

To operate the recorder with your TV using an RF connection, it is always necessary to set your TV's channel to UHF channel 36 (or adjusted channel). With an AV connection, set the TV to the VIDEO (or AV) mode.

Handling Video Cassettes

A LOADING A CASSETTE

1. Press OPEN to open the front panel cover.
2. Insert a cassette with its label side facing you.
   - If the cassette is not loaded firmly it will be ejected.



- The counter resets automatically when a cassette is inserted.

B UNLOADING A CASSETTE

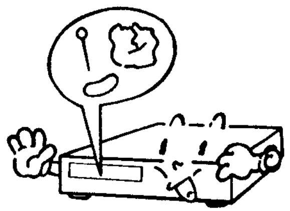
1. Press EJECT.
   - If the cassette will not eject, check to see if "TIMER" is displayed on the message display panel. If it is, press the TIMER button to turn it off.

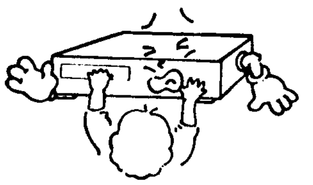
NOTES:

- Be sure to insert the cassette firmly into the slot; otherwise it will be automatically ejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.
- When ejecting the cassette using the remote control's EJECT button with the front panel cover closed, make sure that there are no obstructions preventing the front panel cover from opening.

WARNING

- Do not insert fingers or foreign objects into the cassette loading slot since this could lead to injury or damage to the mechanism. Be especially careful with children.
- Do not try to pull out a cassette once automatic loading has started.





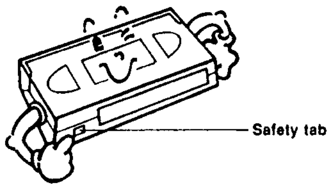
Usable Cassettes And Their Recording Times

This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS video signals only. It is not possible to play back a recorded Super VHS tape.

Type of Cassette	Recording/Playback Time	
	SP (Standard Play)	LP (Long Play)
E-30	30 minutes	1 hour
E-60	1 hour	2 hours
E-90	1 hour, 30 minutes	3 hours
E-120	2 hours	4 hours
E-180	3 hours	6 hours
E-240	4 hours	8 hours

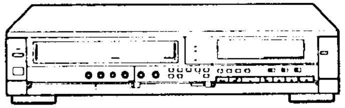
Accidental Erasure Prevention

To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.

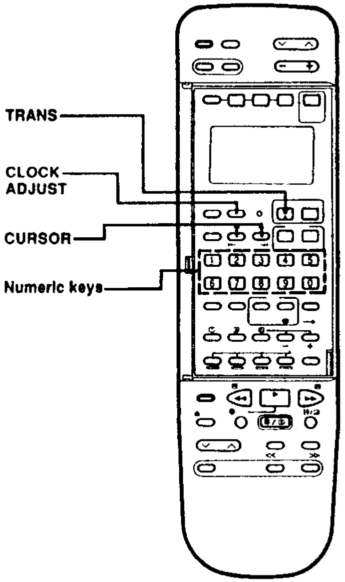


Setting The Clock

Since your video recorder bases all of its timer recording start and stop "decisions" on the time kept by its built-in clock, accurate setting of this clock is crucial for proper timer-recording results. And, since the remote control's LCD clock and the recorder's clock must be set to the same time, this chapter describes the most convenient way of setting both clocks — setting the LCD clock and transferring its contents to the recorder's clock.

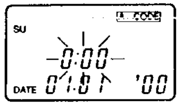


PLUG IN RECORDER



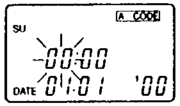
A LOAD BATTERIES (☞p.4)

1 Check the LCD.
- The time display section (0:00) will be blinking.



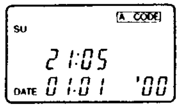
B START CLOCK SETTING

2 Press CLOCK ADJUST.
- Blinking digits will prompt you to items that can be set.



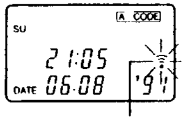
C INPUT THE TIME

3 Press the appropriate numeric keys.
- Example: For 21:05, press 2 1 0 5. Always enter "0" before single-digit entries.



D INPUT THE DAY/MONTH/YEAR

4 Press the appropriate numeric keys.
- Example: For 6th August, 1991, press 0 6 0 8 9 1. Always enter "0" before single-digit entries.
- After setting the year, the transfer-ready mark will appear and blink.



Transfer-ready mark

E TRANSFER AND START THE CLOCK

5 Press TRANS.
- The day of the week will automatically appear.
- The remote control's clock will start. At the same time, the set data will be transferred to the recorder, and displayed on the screen for 5 seconds.

TO MAKE CORRECTIONS

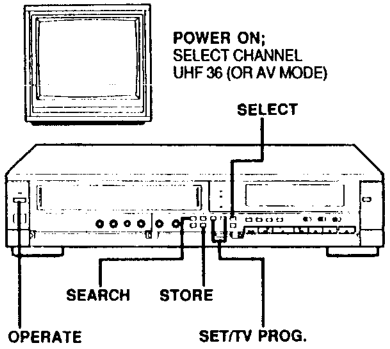
Press either CURSOR button so that the item you want to change blinks.

NOTE:

If you wish to set the recorder's clock directly referring to the message display, ☞p.30. For quick "summer time" (Daylight Saving Time) adjustment, ☞ p.30.

Setting The Tuner

The procedure introduced here lets you assign receivable channels in your area to channel positions on your video recorder's tuner. Once stored, these can be accessed with the TV PROG. ∨/∧ buttons. During channel scanning, empty tuner channel positions will be skipped so you won't have to go through any "blank" channels to get to the one you want.

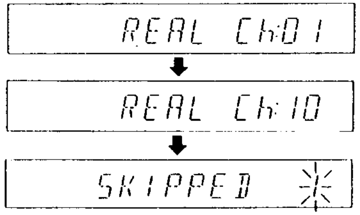


A TURN ON THE RECORDER

1 Press OPERATE.

B SEARCH FOR RECEIVABLE CHANNELS

2 Press SEARCH.
- Automatic scanning will start at the lowest channel number, and stop when a broadcast is detected.



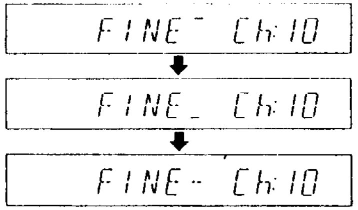
- Regular channels (Ch) are scanned first, then cable channels (CC).

C FINE-TUNE THE CHANNEL

- Check the picture on the TV screen, and fine-tune it if necessary. When the picture is clear, proceed to Step D.

3 Press SELECT.

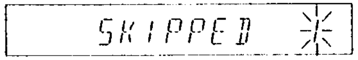
4 Press SET (+ or –) so that the "–" sign appears at the centre.



5 Press SELECT.

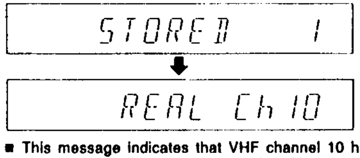
D SELECT A TUNER POSITION

6 Press TV PROG. to select the tuner channel position where you wish to store that broadcast.



E STORE THE CHANNEL

7 Press STORE.



- This message indicates that VHF channel 10 has been stored into the tuner's channel position 1.

F CONTINUE

8 Repeat steps 2 through 7 for other receivable channels.

TO CHANGE PRESET CHANNELS

- If you have already preset some channels, do not use the automatic Channel Search function to change or add channels. ☞ p.31.

Notes:

- If you don't want to store the broadcast detected in Step B, simply press SEARCH to continue automatic scanning. Search will stop as soon as another broadcast is detected.
- Be sure to proceed to the next step within 10 seconds, otherwise Channel Search will be cancelled automatically. If this happens and you wish to continue channel setting, press SEARCH again. Channel scanning will resume, beginning with the next receivable channel.

MODE Mode Displays — What They Mean

Message Display Panel

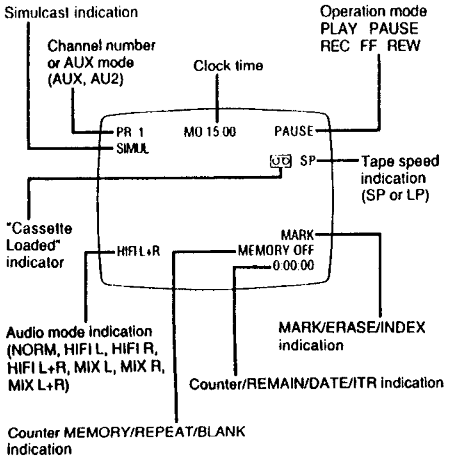
The operation mode is displayed on the recorder's display panel automatically. Displayed messages are designed to be self-explanatory. Here are some of the more common displays:

DISPLAY	MODE	DISPLAY	MODE
PLAY	Play	PAUSE (with channel number)	Record-Pause
STILL	Still	FWD SEARCH	Forward Search
FF	Fast-Forward	REV SEARCH	Reverse Search
REW	Rewind	FWD SLOW	Forward Slow
REC SP (with channel number)	Record	REV SLOW	Reverse Slow
TIMER REC	Timer-Recording	EJECT	Eject

For a more comprehensive list, ☞ p.34.

On-Screen Display

Operation modes (except PAUSE) are displayed on the TV screen only when the On-Screen Display function is set to ON. ☞p.12.


Simulcast indication
Channel number or AUX mode (AUX, AU2)
Clock time
Operation mode PLAY PAUSE REC FF REW
PR 1
SIMUL
MO 15.00
PAUSE
SP
Tape speed indication (SP or LP)
"Cassette Loaded" indicator
HIFI L+R
MARK
MEMORY OFF
0:00:00
Audio mode indication (NORM, HIFI L, HIFI R, HIFI L+R, MIX L, MIX R, MIX L+R)
MARK/ERASE/INDEX indication
Counter/REMAIN/DATE/ITR indication
Counter MEMORY/REPEAT/BLANK indication

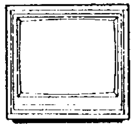
AUTOMATIC INDICATION

- **Channel, operation mode, audio mode, simulcast indication and "Cassette Loaded" mark**
  When the status is changed, the corresponding indication is displayed on the screen for 5 seconds. The PAUSE mode indication, however, is displayed for as long as the Pause mode is engaged.
- **Time and date**
  When time setting is completed, time and date are displayed for 5 seconds.

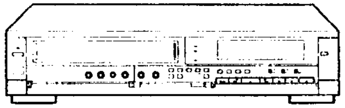
MANUAL RECALL

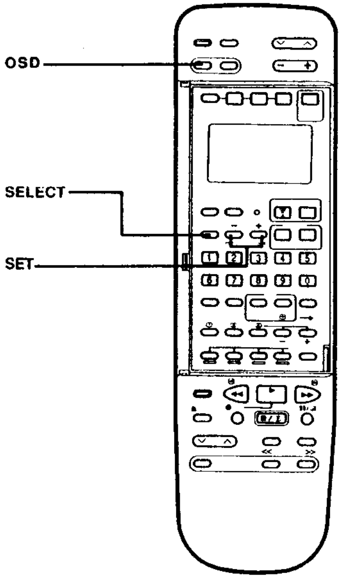
1. Press OSD (On-Screen Display).
   - All indications corresponding to the current status is displayed for 5 seconds, leaving the counter information (counter, REMAIN or DATE) on the screen.
   - To check only the counter information, press DISPLAY.
2. Press OSD to clear the counter display.

VCR On-Screen Set Up



POWER ON;
SELECT CHANNEL
UHF 36 (OR AV MODE)




OSD
SELECT
SET

Language Select

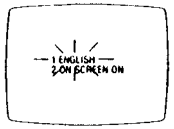
Although the preset on-screen language is English, you can set your video recorder to display on-screen messages in a choice of 10 languages.

A TURN ON THE RECORDER

1 Press OPERATE.

B ACCESS THE LANGUAGE SELECT MODE

2 Press OSD for longer than 2 seconds.
- The current language and On-Screen ON/OFF status are displayed on the screen.
- The displayed language blinks.


1 ENGLISH
2 ON SCREEN ON

C SELECT THE LANGUAGE

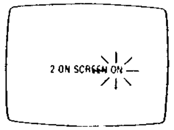
3 Press SET + or − until your desired language is displayed.
- Available languages are: ENGLISH, DEUTSCH, FRANCAIS, ITALIANO, ESPANOL, NEDERLANDS, SVENSKA, NORSK, SUOMI, and DANSK, in the order they are called up.

4 Press OSD while the language is blinking.
- Now all on-screen messages will be displayed in the selected language.

On-Screen Display Function ON/OFF

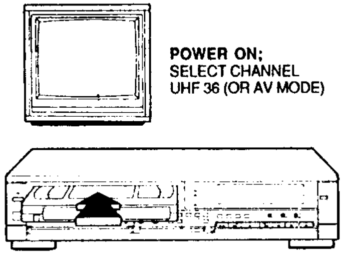
If you do not want on-screen displays, the function can be cancelled.

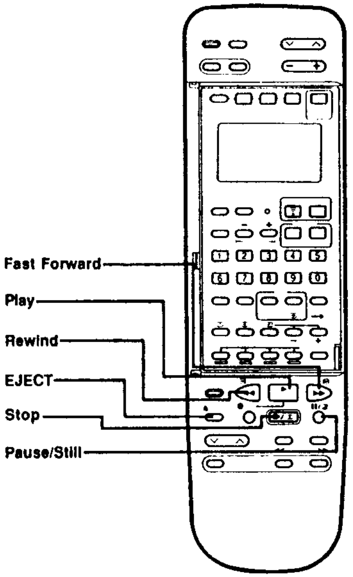
1. Press SELECT after step 2 above.
   - The On-Screen ON/OFF status is displayed.
2. Press either SET button.
3. Press OSD while the status is blinking.
   - Even with the function set to OFF, "PAUSE" is displayed for as long as the Pause mode is engaged. Of course, on-screen timer programming is not affected either.


2 ON SCREEN ON

▶ Playback

The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.





A LOAD A CASSETTE

1 Insert a cassette.
- The recorder power will come on automatically.
- If the safety tab on the cassette is removed, playback will start automatically.

B TO START PLAYBACK

2 Press ▶ (Play).

C TO STOP PLAYBACK

3 Press ■ (Stop).

D TO REWIND OR FAST-FORWARD

4 Press ◀◀ (Rewind) to rewind the tape.
5 Press ▶▶ (Fast Forward) to fast-forward the tape.
- Press ■ (Stop) to stop rewind or fast-forward.

E TO EJECT THE TAPE

6 Press EJECT.

High-Speed Forward And Reverse Search

During Playback:

1. Press ▶▶ (Fast Forward) for high-speed forward search.
2. Press ◀◀ (Rewind) for high-speed reverse search.
3. Press ▶ (Play) to resume normal playback.
   - For short searches, keep ▶▶ (Fast Forward) or ◀◀ (Rewind) pressed for more than 2 seconds. When released, normal playback will continue.

Still Playback And Frame Advance

During Playback:

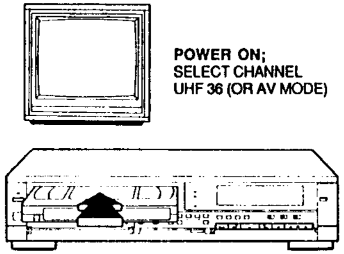
1. Press ❚❚ (Pause/Still) to view a still picture.
2. Press again to advance the picture frame by frame.
3. Press ▶ (Play) to resume normal playback.

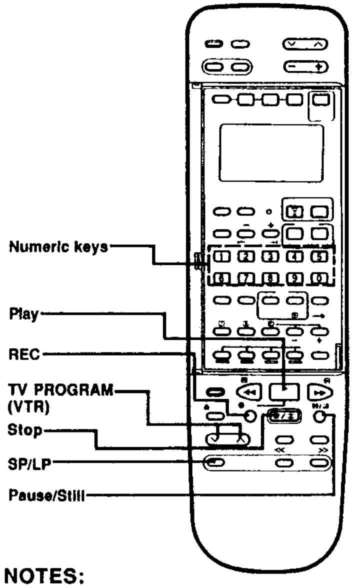
NOTES:

- Tapes with monaural soundtracks (normal audio) are automatically played back in the NORM mode. When playing back tapes with Hi-Fi stereo, bilingual, or audio-dubbed soundtracks, ☞p.20.
- The recorder automatically stops when still continues for more than 5 minutes.
- If the still picture is unstable (vertical jitter) use the recorder's V. LOCK buttons to correct the picture.
- During search playback, some noise bars will appear.
- If noise bars appear during playback, correct using manual tracking. ☞p.19.
- There is no audio during search, still, or frame-by-frame playback.
- The recorder automatically rewinds when the end of the tape is reached.

● Recording

TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. This is realtime video recording.





A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

B CHOOSE A PROGRAMME

2 Press TV PROGRAM (VTR) or the numeric keys to select the channel you wish to record.

C SELECT THE TAPE SPEED

3 Press SP/LP.

D TO START RECORDING

4 Press ● REC (Record) and ▶ (Play) simultaneously.

E TO PAUSE RECORDING

5 Press ❚❚ (Pause/Still).
6 Press ▶ (Play) to resume recording.

F TO STOP RECORDING

7 Press ■ (Stop).

To Watch Another Programme While Recording

During Record:

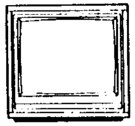
1. Use the channel controls on the TV to select the other channel you wish to view.
   - The programme selected with the TV channel controls will appear on the TV screen while the one selected with the video recorder's channel controls will be recorded on the tape.

NOTES:

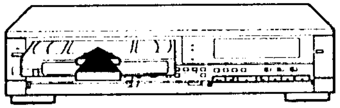
- To start recording with the recorder's REC/ITR button, press it once on its own. Pressing REC/ITR more than once activates the Off-Timer. ☞p.21.
- After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.
- The recorder automatically stops when record-pause continues for more than 5 minutes.
- If the Record button does not work, check to see if the cassette's safety tab has been removed.
- When a VPS programme is being broadcast on the selected channel, "VPS" appears on the display panel. ☞p.27 for information on VPS.
- The channel cannot be changed while recording is in progress. To change the channel, engage the record-pause mode, then change the channel.
- The recorder automatically rewinds when the end of the tape is reached during recording.
- For stereo or bilingual recording, ☞p.22.

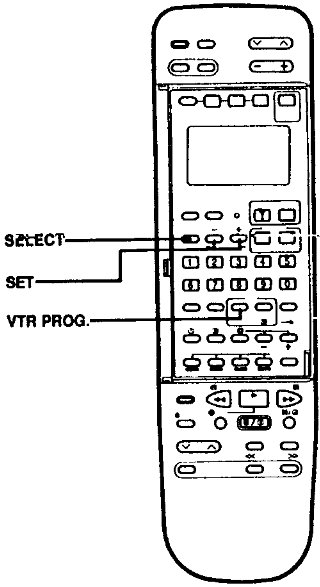
Timer-Recording

The on-screen and LCD timer programming methods are introduced here. Both have different advantages. With on-screen programming, you can follow easy-to-see guides on your TV screen. With LCD programming, you can preserve the programmed data in memory and transfer it to the recorder anytime when necessary. If you prefer to use the recorder's controls and message display panel, ☞p.25. TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.



POWER ON;
SELECT CHANNEL
UHF 36 (OR AV MODE)




SELECT
SET
VTR PROG.

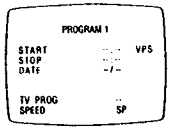
On-Screen Timer Programming

A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

B ACCESS THE ON-SCREEN PROGRAM DISPLAY

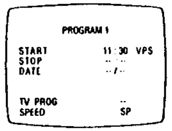
2 Press VTR PROG.
- You are ready to input data into Program No. 1.
- To change the program number, press SET.


PROGRAM 1
START --:-- VPS
STOP --:--
DATE --/--
TV PROG --
SPEED SP

C INPUT THE START TIME

3 Press SELECT, and then SET to input the hour.

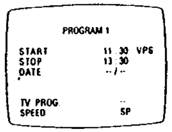
4 Press SELECT, and then SET to input the minute.


PROGRAM 1
START 11:30 VPS
STOP --:--
DATE --/--
TV PROG --
SPEED SP

D INPUT THE STOP TIME

5 Press SELECT, and then SET to input the hour.

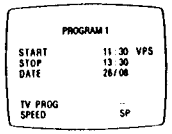
6 Press SELECT, and then SET to input the minute.

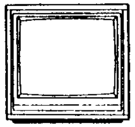

PROGRAM 1
START 11:30 VPS
STOP 13:30
DATE --/--
TV PROG --
SPEED SP

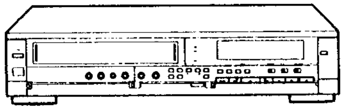
E INPUT THE DATE

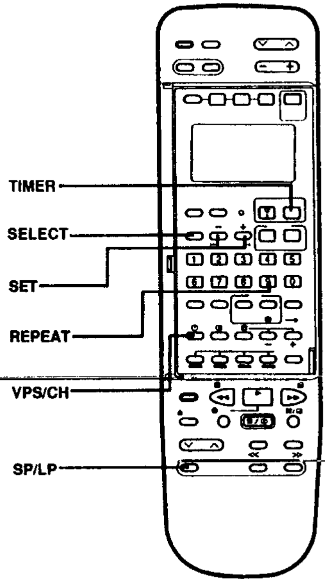
7 Press SELECT, and then SET to input the day.

8 Press SELECT, and then SET to input the month.


PROGRAM 1
START 11:30 VPS
STOP 13:30
DATE 26/08
TV PROG --
SPEED SP





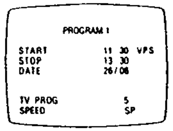

TIMER
SELECT
SET
REPEAT
VPS/CH
SP/LP

CAUTION:

Make sure that the tape length is enough to record the intended programme. If the tape finishes before the stop time is reached, the cassette is automatically ejected. If the recorder is placed inside a rack, there must be sufficient clearance to allow the front panel cover to open unobstructed.

F INPUT THE CHANNEL NUMBER

9 Press SELECT, and then SET to input the channel.
- The screen colour changes to green.
- Normally, you should leave "VPS" on so you can take advantage of VPS recording*. You can cancel VPS by pressing the VPS/CH button whenever the memory program is open. If you have any questions about VPS, ☞p.27.


PROGRAM 1
START 11:30 VPS
STOP 13:30
DATE 26/08
TV PROG 5
SPEED SP

G SELECT THE TAPE SPEED

10 Press SELECT, and then SP/LP.

H END ONE PROGRAM

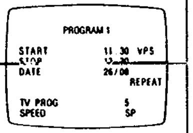
11 Press SELECT.
- The program number will blink.
- To make corrections, advance with SELECT to the item you wish to change and input new data with SET.
- If you need to set another program, press SET and repeat steps 3 through 11.

I SET TO TIMER MODE

12 Press TIMER.
- The recorder will enter the timer mode and power will go off.
- Press TIMER again to release the timer mode.

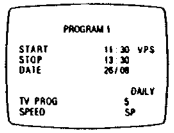
Variations in Step E (Weekly Program)

This function lets you set the recorder to timer-record at the same time on the same day every week. Use it to record weekly serials.
- First press REPEAT (numeric key "9") and then enter the date.


PROGRAM 1
START 11:30 VPS
STOP 13:30
DATE 26/08
REPEAT
TV PROG 5
SPEED SP

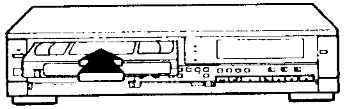
Variations in Step E (Daily Program)

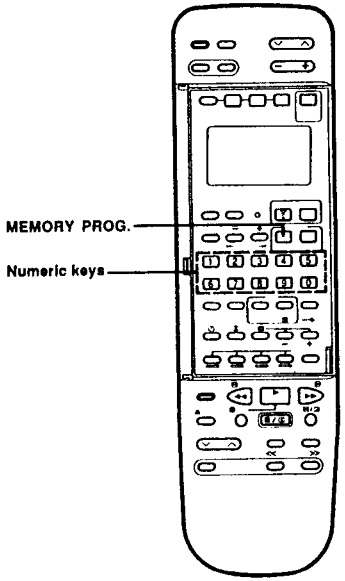
This function lets you set the recorder to timer-record at the same time everyday. Use it to record daily serials.
- To record a daily serial starting on the day of setting, press REPEAT twice (numeric key "9") and then press SELECT.
- To record a daily serial starting on a certain day, press REPEAT twice and then enter the date.


PROGRAM 1
START 11:30 VPS
STOP 13:30
DATE 26/08
DAILY
TV PROG 5
SPEED SP

* VPS adapter is required on "E" version.

Timer-Recording (Cont'd)





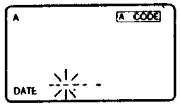
LCD Timer Programming

A LOAD A CASSETTE

■ Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

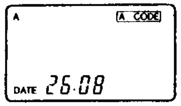
B ACCESS THE LCD TIMER PROGRAM

■ Press MEMORY PROG. (Program A)
- Four programs (A, B, C, and D) are available. To select another program, press MEMORY PROG.



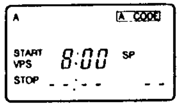
C INPUT THE DATE

■ Press the appropriate numeric keys.
- Example: For 26th August, press 2 6 0 8.



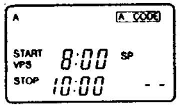
D INPUT THE START TIME

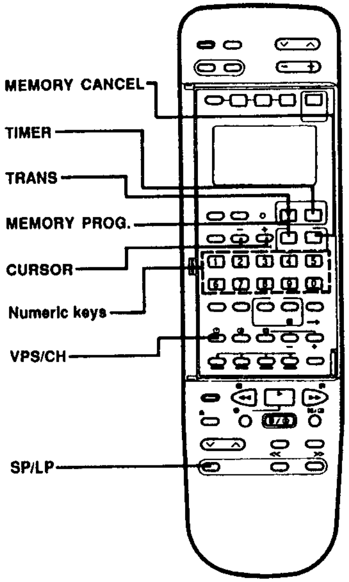
■ Press the appropriate numeric keys.
- Example: For 8:00, press 0 8 0 0.



E INPUT THE STOP TIME

■ Press the appropriate numeric keys.
- Example: For 10:00, press 1 0 0 0.



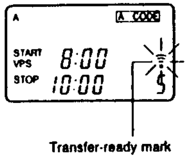


For other timer programming methods, ☞ p.25.
Any questions? ☞ p.26.

* VPS adapter is required with "E" version.

F INPUT THE CHANNEL NUMBER

■ Press the appropriate numeric keys.
- Example: For channel 5, press 5.
- After the channel has been entered, the transfer-ready mark will appear and blink.
- Normally, you should leave "VPS" on so you can take advantage of VPS recording*. You can cancel VPS by pressing the VPS/CH button whenever the memory program is open. If you have any questions about VPS, ☞p.27.



G SELECT THE TAPE SPEED

■ Press SP/LP.

H TRANSFER THE DATA TO THE RECORDER

■ Press TRANS with the remote control directed to the recorder's Remote Sensor window.
- You will see "PROGRAM 1" on the display panel, telling you that the data has been successfully transferred to the recorder's Program 1 memory.

I SET TO TIMER MODE

■ Press TIMER.
- The recorder will enter the timer mode and power will go off.
- Press TIMER again to release the timer mode.

Variations In Step C (Weekly Program)

This function lets you set the recorder to timer-record at the same time on the same day every week. Use it to record weekly serials.
- First press numeric key "9" (REPEAT) and then enter the date.

Variations In Step C (Daily Program)

This function lets you set the recorder to timer-record at the same time every day. Use it to record daily serials.
- To record a daily serial starting on the day of setting, press numeric key "8" (DAILY) and then press CURSOR → until the display changes to time input mode.
- To record a daily serial starting on a certain day, press numeric key "8" (DAILY) and then enter the date.

TO MAKE CORRECTIONS

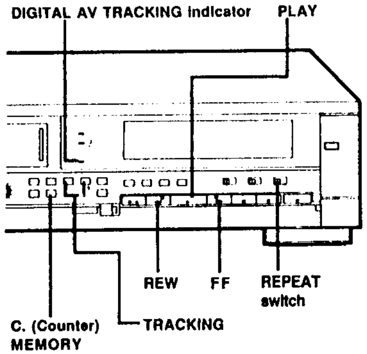
- Press either CURSOR button so that the item you want to change blinks, and enter new data.

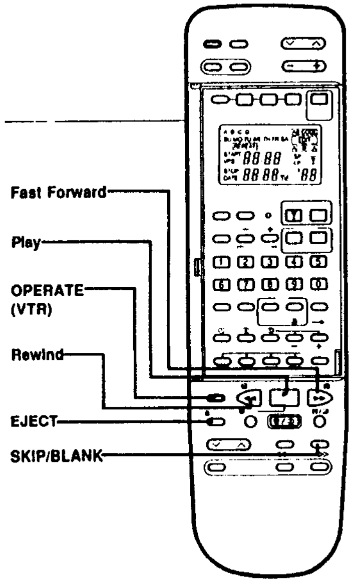
TO CANCEL PRESET PROGRAMS

1. Press MEMORY PROG. to call up the program you wish to cancel (A – D).
2. Press MEMORY CANCEL.

▶ For Playback

Take advantage of special functions possible with the recorder's controls or the remote control.





NOTE:

When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

Repeat Playback (Recorder)

Your video recorder can automatically play back the whole tape or an index-marked portion 5 times repeatedly.

1. Set the REPEAT switch to FULL or INDEX.
2. For Index Repeat playback, locate the index code at which you wish to start playback. (Index Search, ☞p. 24.)
3. Press PLAY. Repeated playback will start. After repeating 5 times consecutively, playback will stop.
   - Be sure to reset the REPEAT switch to OFF before pressing the PLAY button again; otherwise repeat playback will resume.

Manual Tracking (Recorder)

Your video recorder is equipped with automatic tracking control; the DIGITAL AV TRACKING indicator lights or blinks when automatic tracking is on. If you wish to adjust tracking manually during playback:

1. Press TRACKING (+ and –) simultaneously for manual override.
   - The DIGITAL AV TRACKING indicator will go out.
2. Press TRACKING (– or +) to adjust tracking when required.
3. Press TRACKING (+ and –) simultaneously to return to automatic tracking.

To adjust tracking during slow motion, simply press TRACKING (– or +) to obtain the best picture.

Memory Play (Recorder and Remote Control)

For automatic start of playback after tape is rewound:

1. Press ◀◀ (Rewind).
2. Press ▶ (Play) within 2 seconds.

For automatic power off after tape is rewound:

1. Press ◀◀ (Rewind).
2. Press OPERATE (VTR) within 2 seconds.

Memory Play (Recorder)

For automatic start of playback beginning at counter position "0:00:00":

1. Press C. MEMORY.
2. Press REW (or FF).
3. Press PLAY within 2 seconds.

Memory Eject (Remote Control)

For automatic tape eject after tape is rewound:

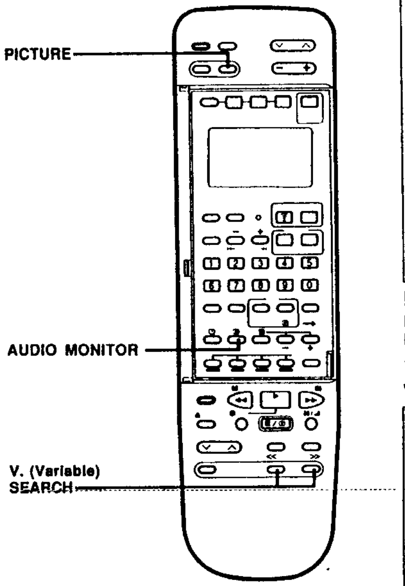
1. Press ◀◀ (Rewind).
2. Press EJECT within 2 seconds.

Skip Search (Remote Control)

Your recorder offers a simple way of skipping over unwanted sections of recorded TV programmes.

During Playback:

1. Press SKIP/BLANK from 1 to 4 times.
   This fast-motions through 30-sec. to 2-min. of tape.
   - Playback resumes automatically.
   - Press ▶ (Play) to cancel a Skip Search midway.



NOTES:

- If noise bars appear during slow motion, correct using manual tracking. ☞ p.19.
- During variable-speed search, some noise bars will appear.
- When playing back LP recordings in the search, still, or frame-by-frame playback mode, the picture will be distorted, and there may be a loss of colour.

Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HIFI L, HIFI R and NORM) simultaneously, and playing back the selected soundtrack.

- Pressing AUDIO MONITOR changes the channel:
  L+R → L → R
- Pressing AUDIO MONITOR for more than 2 seconds changes the track:
  HIFI → NORM → MIX

Usual settings
HIFI L + R: for Hi-Fi stereo tapes
HIFI L or HIFI R: for bilingual tapes
MIX L + R : for audio-dubbed tapes

NOTE:

Normally use the HIFI L + R position. Then Hi-Fi stereo tapes are played back in stereo, and tapes with normal audio only are played back automatically in the NORM mode.

Variable-Speed Search And Slow Motion

You can view pictures in slow to fast motion in either direction. The V. (Variable) SEARCH buttons let you control the speed and the direction.

During Play or Still:

1. Press either V. SEARCH button. Tape will move in the corresponding direction.
   - The more times the button is pressed, the faster the playback picture will move.
   - To decrease speed, press the button for the opposite direction.
   - Press ▶ to resume normal playback.

Picture Control

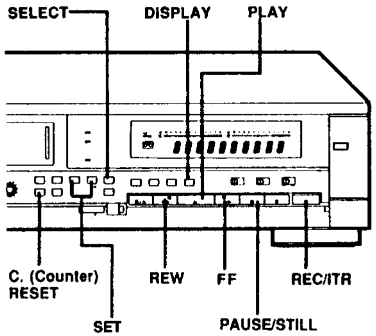
Your video recorder has a built-in video processor that lets you choose the type of playback picture that's best for any given application.

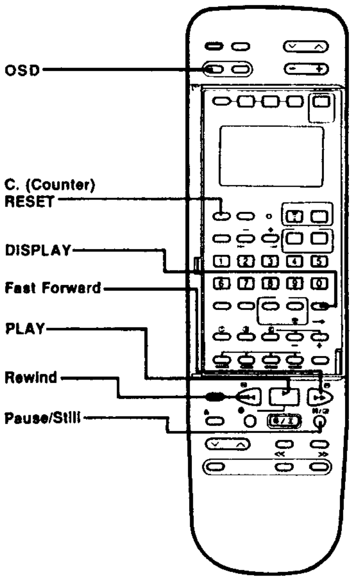
During Play:

1. Press PICTURE as many times as required to reach the desired setting.
   - The display panel shows the setting for 5 seconds.

Display Panel	When To Use
ENHANCED	When viewing tapes with noise due to repeated playback, such as rental videos.
TAPE DUB	When editing to another recorder.
SOFT PIX	When you want a soft picture.
SHARP PIX	When you want a sharp picture.
OFF	When no modification is required.

For Recording





NOTES:

- With Retake, rainbow noise may occur in the rewound and re-recorded section. Retake in the LP mode is not recommended.
- The remaining time is inaccurate while the display is blinking. When blinking stops, the remaining time is shown.

Instant Timer Recording (Off Timer) (Recorder)

You can start a recording and then set the recorder to shut off automatically after a set duration.

During Record:

1. Press REC/ITR (on the recorder). A "REC SP 0:30" or "REC LP 0:30" indication appears, advising that power will switch off after 30 minutes.

   REC SP 0:30

   - "ITR 0:30" will be displayed on the TV screen.
2. Press REC/ITR again to delay the off-time by 30-minute increments (up to 4 hours).
   - For a more precise setting, use the SELECT/SET buttons to set the exact time required (possible up to 8 hours and 59 minutes).

Retake (Recorder and Remote Control)

You can cut out unwanted parts of a TV programme while you're recording it.

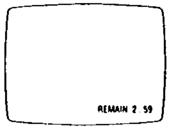
During Record:

1. Press PAUSE/STILL.
2. Press FF or REW for normal-speed search in the corresponding direction.
   - Release to return to Record-Pause mode.
3. Press PLAY when you wish to resume recording.

Remaining Tape Time Indication
(Recorder and Remote Control)

When you need to know the tape's remaining time.

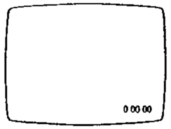
1. Press DISPLAY until "REMAIN" appears on the screen. Approximate remaining tape time is displayed.
2. To clear the screen, press OSD.
   - The display panel also shows remaining tape time, but, during recording, changes back to the "REC" mode display after 5 seconds.

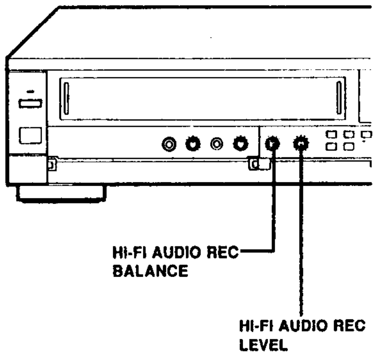


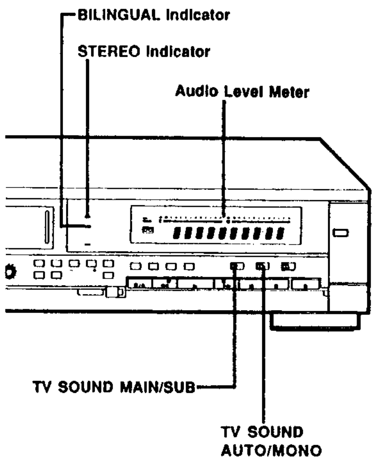
Elapsed Recording Time Indication
(Recorder and Remote Control)

When you need to know the exact time of a recording.

1. Press DISPLAY until a counter reading appears on the screen.
2. Press C. (Counter) RESET and then start recording.
   - The counter will be reset to "0:00:00", and show the elapsed time as the tape runs.
   - The display panel also shows a counter reset to "0:00:00", but is replaced by the Record mode display.
3. To clear the screen, press OSD. And press DISPLAY anytime when you want to check the elapsed recording time.







Hi-Fi Audio Recording Level Control

In most cases, setting the Hi-Fi AUDIO REC BALANCE and LEVEL controls to the center position will provide satisfactory results. If necessary, you can adjust the Hi-Fi audio recording level more precisely by referring to the audio level meter above the message display.

- Turn the BALANCE control to adjust the balance between left and right channels.
- Turn the LEVEL control to adjust the level. When the level meter lights up to or near 0 dB with the loudest signal being applied, the recording level is optimum.

NOTES:

- Make sure that the "HIFI L + R" position is selected with the AUDIO MONITOR button. ☞p.20.
- Noise will increase if the recording level is too low, while distortion will increase if the level is too high.

Stereo And Bilingual

Your recorder is equipped with a Sound-Multiplex decoder for reception of stereo and bilingual broadcasts.

- When a stereo programme is being received, the STEREO indicator lights. (The TV SOUND AUTO/MONO switch must be set to AUTO.)
- When a bilingual programme is being received, the BILINGUAL indicator lights.

To Record Stereo Programmes

Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound). No special operation is required. Simply follow the basic recording procedure.

- To listen to the stereo soundtrack while recording, select "HIFI L+R" with AUDIO MONITOR. ☞p.20

NOTE:

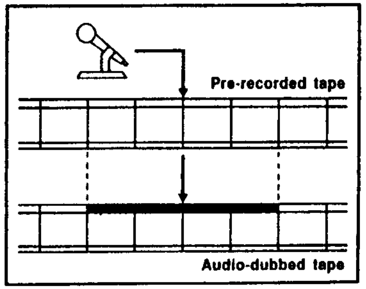
- If the quality of stereo sound being received is poor, set the TV SOUND AUTO/MONO switch to MONO. The STEREO indicator will go off, and the broadcast will be received in monaural with better quality.

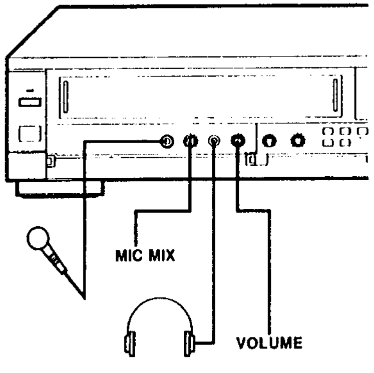
To Record Bilingual Programmes

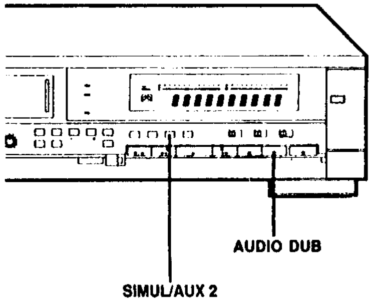
Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. You can select either soundtrack (Main or Sub) to record on the normal audio track.

- Set the TV SOUND MAIN/SUB switch as required.
- To listen to the Hi-Fi soundtrack during recording, select "HIFI L" for Main, and "HIFI R" for Sub.
- To listen to the normal soundtrack, select "NORM".

● For Recording (Cont'd)







Audio Dubbing

Audio dubbing means replacing the normal audio sound of a pre-recorded tape with a new soundtrack. Create your personal-touch tapes by recording commentary, etc.

PREPARATION

1. Connect a microphone to the MIC jack.
2. Select the AUX INPUT 2 mode. (First engage the AUX INPUT mode with "0" key or TV PROGRAM, then press SIMUL/AUX 2.)

PROCEDURE

1. Adjust the input level with the MIC MIX control.
2. Start playback and engage the Still mode at the point from which you wish to start audio dubbing.
3. Press the AUDIO DUB button.
4. Press the PLAY button.
   - Audio dubbing will start.
5. Press the PAUSE/STILL button to stop audio dubbing temporarily.

NOTES:

- Audio dubbing will stop automatically at the counter reading of "0:00:00", and the recorder will enter the Play mode. Check the counter before starting audio dubbing.
- If howling occurs, move the microphone away from the TV or reduce the TV sound volume. If necessary, monitor the sound with headphones.
- If you wish to use audio sources other than microphone input, connect the audio equipment to the rear panel AUDIO IN connectors. (For monaural equipment, use the L connector.) If both the microphone and another audio source are connected, mixed recording is possible.
- Audio dubbing is also possible with input via the 21-pin AUDIO/VIDEO socket. In this case, use the AUX INPUT mode.

Simulcast Recording

Your recorder lets you record an audio programme while recording a TV programme. In the Simulcast mode, the TV soundtrack is recorded on the normal audio track and the external audio programme is recorded on the Hi-Fi audio track, so you can have two independent programmes. If FM simulcast TV programmes are available, record the TV programme and its FM-broadcast soundtrack simultaneously.

PREPARATION

1. Connect an FM tuner to the rear panel AUDIO IN connectors.
2. Set the FM tuner to the desired broadcast.

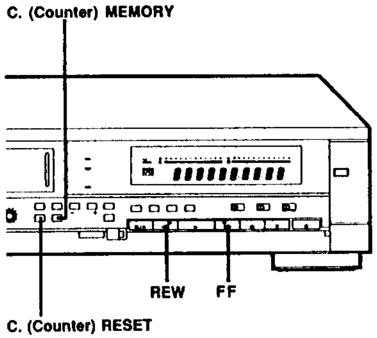
PROCEDURE

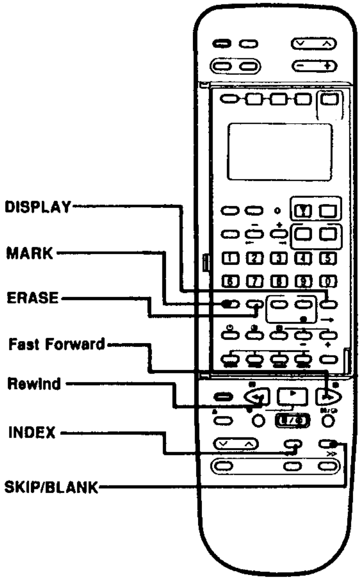
1. Select the TV programme you wish to record.
2. Select the SIMULCAST mode by pressing the SIMUL/AUX 2 button.
3. Start recording.

NOTES:

- If you stop recording with the PAUSE/STILL button to avoid unwanted TV programme material, the audio programme is also cut.
- After finishing simulcast recording, be sure to press the SIMUL/AUX 2 button to cancel the Simulcast mode, otherwise it is not possible to record on the Hi-Fi track from the built-in tuner.

◄◄ ►► For Tape Access





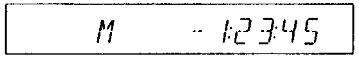
NOTES:

- Index codes cannot be marked or erased if the cassette's safety tab is removed. ☞ p.8.
- Press ► (Play) or ■ (Stop) to cancel Index Search or Blank Search.
- If the end of the tape is reached during Index Search or Blank Search, the mode is cancelled and the tape is rewound to the beginning.
- When a fully recorded tape is used for re-recording new material, Blank Search can be used to detect the end of the new material.

Counter Memory (Recorder)

During Play or Stop:

1. Press C. RESET (with a counter reading on the display) at a point you wish to locate later.
   - The counter will read "0: 00: 00".
2. Press C. MEMORY.
   - "M" will appear in front of the counter digits.
   - "MEMORY ON" will be displayed on the TV screen.
3. Press REW (or FF) when you wish to return to that point.
   - The tape will rewind (or fast forward) and stop at about "0: 00: 00" automatically.



4. To cancel the Counter Memory mode, press C. MEMORY.

Index Search (Remote Control)

This function gives you quick access to any one of 9 index codes in either direction. Your recorder automatically marks index codes at the beginning of each recording. You can manually mark and erase index codes as well.

During Playback or Stop:

1. Press INDEX. "INDEX 1" will be displayed on the screen.
   - If you wish to access Index codes 2 through 9, press INDEX repeatedly until the correct index number is displayed.
2. Press ►► (Fast Forward) or ◄◄ (Rewind). Index Search will start in the corresponding direction.

Manual Index Mark/Erase (Remote Control)

TO MARK

During Playback or Record:

1. Press MARK. The recorder will mark an index code at that location.

TO ERASE

During Playback or Still:

1. Press ERASE. The recorder will fast-forward to the nearest index code and delete it.

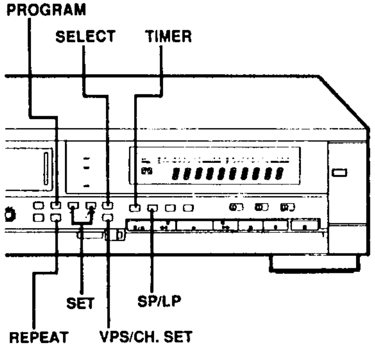
Blank Search (Remote Control)

This function lets you quickly locate the blank portion of a partially recorded tape.

During Stop:

1. Press SKIP/BLANK.
   - The recorder automatically fast-forwards or rewinds to the end of the recorded portion of tape, and stops.
   - The tape's remaining time is automatically displayed. Press DISPLAY to return to the realtime counter display.

For Timer-Recording



Things You Should Know

Timer-recording is one of the most useful functions of your video recorder, and, if you don't understand it, it can be one of the most complicated too. This chapter describes the method of programming the timer directly with the recorder's controls, and how the message display helps you in timer recording. Please read the following to get a clear idea about why things work the way they work, and what you should do when things don't work as expected.

Direct Timer Programming

The built-in 1-year/8-event programmable timer can be set directly at the recorder, referring to the message display panel. Make sure that the message display panel shows the correct current time.

A LOAD A CASSETTE

■ Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

B

■ Press PROGRAM.
- You are ready to input data into Program No. 1.
- To change the program number, press SET.

PROGRAM 1

C INPUT THE START TIME

■ Press SELECT, and then SET to input the hour.
■ Press SELECT, and then SET to input the minute.

START 12:00

D INPUT THE STOP TIME

■ Press SELECT, and then SET to input the hour.
■ Press SELECT, and then SET to input the minute.

STOP 13:00

E INPUT THE DATE

■ Press SELECT, and then SET to input the day.
■ Press SELECT, and then SET to input the month.

DATE 04/12

F INPUT THE CHANNEL NUMBER

■ Press SELECT, and then SET to input the channel.

VPS PR.10

- Normally, you should leave "VPS" on so you can take advantage of VPS recording*. You can cancel VPS by pressing the VPS/CH.SET button whenever the memory program is open. If you have any questions about VPS, ☞p.27.

G SELECT THE TAPE SPEED

■ Press SELECT, and then SP/LP.

SPEED SP

H END ONE PROGRAM

■ Press SELECT.
- The current program number will appear and blink.
- To make corrections, advance with SELECT to the item you wish to change and input new data with SET.
- If you need to set another program, press SET and repeat steps 3 through 11.

I SET TO TIMER MODE

■ Press TIMER.
- The recorder will enter the timer mode and power will go off.
- Press TIMER again to release the timer mode.

Variations In Step E (Weekly Program)

This function lets you set the recorder to timer-record at the same time on the same day every week. Use it to record weekly serials.
- First press REPEAT and then enter the date.

REPT 04/12

Variations In Step E (Daily Program)

This function lets you set the recorder to timer-record at the same time everyday. Use it to record daily serials.
- To record a daily serial starting on the day of setting, press REPEAT twice and then press SELECT until the display changes to channel setting mode.
- To record a daily serial starting on a certain day, press REPEAT twice and then enter the date.

DAILY04/12

NOTE:

The REPEAT button rotates the date set mode among DATE, REPT, and DAILY.

*VPS adapter is required on "E" version.

Error Messages

The following error messages may appear on the message panel when you press the TIMER button to engage the Timer Standby mode. Here's why, and what you should do.

NO CASS

- Displayed for 5 seconds and the Timer Standby mode is cancelled.

WHY: There is no cassette in the recorder.
WHAT TO DO: Insert a cassette. Press TIMER again.

NO REC TAB

- Displayed for 5 seconds. The Timer Standby mode is cancelled.

WHY: The inserted cassette has its safety tab removed.
WHAT TO DO: Eject that cassette. Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. Press TIMER again. ☞p.8.

NO PROGRAM

- Displayed for 5 seconds. The Timer Standby mode is cancelled.

WHY: There are no preset programs in memory.
WHAT TO DO: Check the programmed data and re-program it as necessary. Press TIMER again.

……………………………………………

Other Messages

The following messages may also be encountered during timer-recording.

TIMER (with current hour)

WHY: The recorder is in the Timer Standby mode. This is the normal display you should see when you press the TIMER button.

TIMER REC

WHY: Normal display while timer-recording is in progress.

TAPE END

WHY: If this and "TIMER REC" are alternately displayed, it means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.

SET CLOCK

WHY: This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the recorder's power plug was pulled from the AC outlet.
WHAT TO DO: Set the clock. ☞p.9.

- If power was interrupted, it's also likely that all preset timer programming data has been erased. Please check and re-program as necessary.

The following messages may be encountered when the TRANS button of the remote control is pressed. ☞p.18.

PROGRAM (with number)

- Displayed for 5 seconds.

WHY: The transferred data has been stored in that program number. (The smallest vacant program number is always selected automatically.)

TRANS ERR

- Displayed for 5 seconds.

WHY: Data was not successfully transferred. The program may have been incorrectly preset, or the recorder's clock has not been set.
WHAT TO DO: Check the LCD program, and re-program as necessary. Transfer the correct data.

PROG FULL

- Displayed for 5 seconds.

WHY: All the recorder's timer programs (1 – 8) are preset.
WHAT TO DO: Cancel unnecessary programs, and transfer again.

For Timer-Recording (cont'd)

ENGLISH

On Checking And Cancelling Programs

Since executed programs are automatically cleared from memory (except those for daily and weekly serials), cases where the entire 8-event memory is full should be rare. If this should happen, check the preset programs and cancel one or more to make room for the new program(s) you wish to input.

TO CANCEL A PROGRAM

1. Press PROGRAM.
   - Program 1 is displayed with the number blinking.
2. Press SELECT to review the program contents in succession.
3. Press CANCEL to erase the program from memory.
   - You can press CANCEL at any stage while the program is open. .
   - To erase another program, press SET when a blinking program number is displayed.

NOTE:

Cancelling programs is also possible using the remote control and on-screen display. Press VTR PROG. and check the program contents on the screen using SELECT and SET. Press VTR CANCEL while an unnecessary preset program is on the screen.

Some Facts On Timer Operation

- If the end of the tape is reached during timer-recording, the cassette is automatically ejected and recorder's power is switched off with "TIMER REC" and "TAPE END" flashing alternately on the message display panel.
- When timer-recording is successfully completed, the recorder's power is automatically switched off.
- Since the timer starts and stops recording based on the time being kept by the recorder's built-in clock, the clock's time must be accurate for correct timer-recording results.

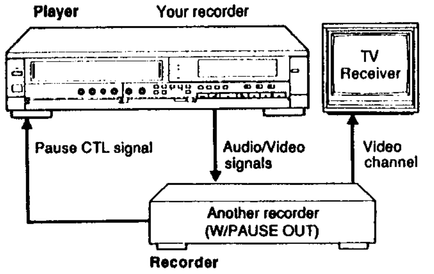
VPS Recording

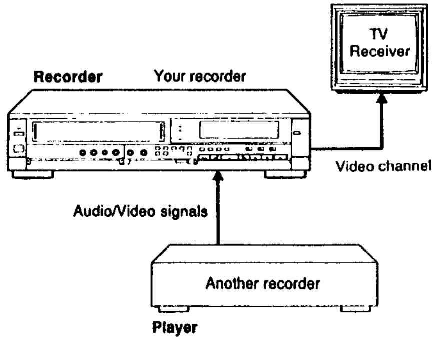
Now available from some TV stations, VPS (Video Program System) is a service designed to assure safe, accurate timer-recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over times you preset in the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed. If your video recorder is an "EG" model, it already incorporates a built-in VPS decoder. If your recorder is an "E" model and you want to take advantage of this service (if available), you must connect an optional adapter (☞ Specifications) to the VPS/VPV/VPT connector on the rear panel of your recorder.

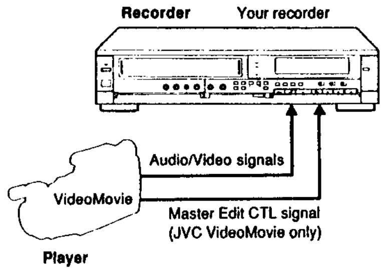
To Use VPS Service

- For each timer program, the initial setting is "VPS ON" and you will see "VPS" on the display panel together with a channel number. You do not have to cancel "VPS" even for non-VPS programmes, because those programmes will be recorded at the preset times.
- To cancel "VPS", press the VPS button. Pressing the VPS button alternates the setting, and "VPS ON" or "VPS OFF" is displayed for 2 seconds.
- When you open the LCD timer memory, the LCD display always shows "VPS". If your video recorder is an "E" version and you have not connected a VPS adapter, be sure to cancel "VPS" by pressing the VPS/CH button before transferring the memory data to the recorder.

For Editing







Editing To/From Another Recorder

ENGLISH

Your video recorder can be used as either the recording deck or the source player when editing tapes. When used as the source player in combination with another video deck which is preroll-capable and equipped with a Pause Control Output terminal, your recorder's PAUSE terminal can accept preroll commands for synchronized preroll editing.

PREPARATION

1. Connect the player's AUDIO/VIDEO connector to the recorder's AUDIO/VIDEO connector.

OPERATION

2. Set the recorder to external input mode (AUX).
   - Press numeric key "0", or press TV PROGRAM (VTR) until "AUX INPUT" appears on the message display.
3. Put the player in the Play mode.
4. Put the recorder in the Record mode.

NOTE:

When using your recorder as a playback deck, select the TAPE DUB mode with the remote's PICTURE button. ☞p.20

Editing From A VideoMovie

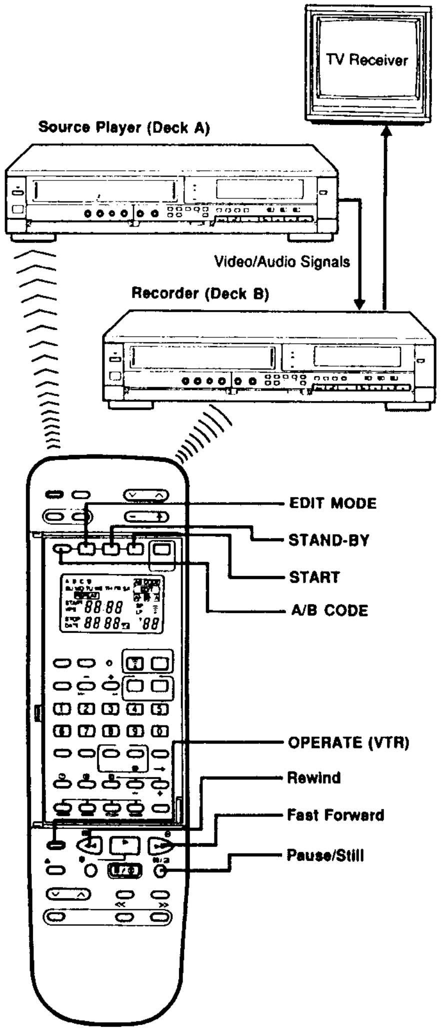
Tape-to-tape editing is also possible using a VideoMovie (equipped with playback facility) as the player and your recorder as the recording deck. In this case, the recorder's PAUSE terminal can be used to accept Master Edit Control commands from the VideoMovie.

PREPARATION

1. Connect the VideoMovie's AV OUT connector to the recorder's AUDIO/VIDEO connector.
2. Connect the AV output cable's mini-plug to the PAUSE terminal of the recorder.

- If the VideoMovie is equipped with the Master Edit Control system, you can control the recorder using the VideoMovie's controls. See VideoMovie's instruction manual for operating procedures.
- With this connection, you can also use the VideoMovie as a video camera for direct recording onto the recorder's tape. Put the recorder in Record-Pause and use the VideoMovie's start/stop trigger to start and pause recording. (For direct recording with a separate video camera, a camera adapter is necessary.)

For Editing (Cont'd)



CAUTION:
Some TV sets may malfunction in response to the B mode. If this happens switch back to the A mode.

Duet Editing

For those who have two JVC video recorders and are interested in editing, this function will simplify editing operations by delivering separate commands to two recorders simultaneously from a single remote control in the form of separate "A" and "B" control codes. (Designated JVC models only.)

PREPARATION

1. Connect two JVC recorders. (PAUSE connection not necessary.) ☞p.28.
2. Set one recorder to respond to A code signals (deck A), and the other to respond to B code signals (deck B). ☞"A/B Code Switching"
3. Place the two decks side by side.
4. Load a recorded tape into deck A, and a blank tape into deck B.
   - Make sure the clock of the remote control has been set.

OPERATION

5. Press the EDIT MODE button. ("EDIT" and "A → B" will appear on the LCD.)
   - If you are using deck B as player, and deck A as recorder, press the A/B CODE button. "A → B" will be replaced with "B → A".
6. Press STAND-BY. Deck A enters Still mode, deck B enters Record-Pause mode.
7. Search for a scene you want to edit from deck A to deck B (only the tape in deck A will move) and press ❚❚ (Pause/Still).
8. Press START. Deck A enters Play mode, B enters Record mode.
9. Press ❚❚. Deck A enters Still mode, B enters Record-Pause mode.
   - Repeat steps 7, 8, and 9 to continue editing.
10. Press EDIT MODE to cancel the Duet Edit mode.

A/B Code Switching

The remote control is preset to send A code signals (indicated by "A CODE" on the LCD) because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1. Unplug the recorder's power cord from the AC outlet.
2. Press the A/B CODE button. ("B CODE" will appear on the LCD.)
3. Plug the power cord back into the AC outlet. Do not use other remote controls at this stage.
4. Turn the recorder power on using the remote control's OPERATE (VTR) button. The recorder will now only respond to B code signals.

NOTE:
You can operate two recorders (A and B) independently from your remote control. Except in the Duet Edit mode, it will send either A or B code signals only, selected with the A/B CODE button.

Special Operations

Setting The Recorder's Clock Directly

To set the recorder's clock, all you have to do is transfer the LCD clock data again (☞p.9). If you prefer to set or adjust the recorder's clock directly at the recorder, read on.

1. Press PROGRAM/CLOCK ADJ.
   - If you are only adjusting the time, the Timer Program mode will be engaged first. So press PROGRAM/CLOCK ADJ. again.
2. Press SET (+ or –) to input the hour.
3. Press SELECT, and then SET (+ or –) to input the minute.
   - If you are only adjusting the time, skip steps 4 – 6.
4. Press SELECT, then SET to input the day.
5. Press SELECT, then SET to input the month.
6. Press SELECT, then SET to input the year.
7. Press PROGRAM/CLOCK ADJ.

NOTES:
- If the day and month data is invalid (such as 31st April), the month digits are cleared automatically and the day digits will blink. Input again.
- If the year digits are automatically cleared when the PROGRAM/CLOCK ADJ. button is pressed in step 7, it is possible that you have input 29th February for a non-leap year. The day digits will blink. Input again.

Setting The Clock Forward Or Backward By One Hour (Daylight Saving Time Adjustment)

This adjustment can be done independently for the LCD clock and the recorder's clock.

TO ADVANCE THE TIME BY ONE HOUR
- Press SUMMER TIME ADJ. (ADJUST) and quickly release.

TO SET THE TIME BACK BY ONE HOUR
- Keep SUMMER TIME ADJ. (ADJUST) pressed for more than 2 seconds.

Turning Off The Display

The fluorescent display on your JVC recorder can be switched off at any time.

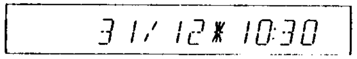
1. Press the DISPLAY OFF button on the recorder. The lights in the display will go out.

2. To restore the display, press the DISPLAY OFF button again.

Locking The Recorder's Controls

To avoid unwanted operation and prevent accidental recording or other interference, use the Child Lock function.

1. Press the remote control's OPERATE (VTR) button to turn the recorder's power off. Keep this button pressed for about 2 more seconds after the power LED indicator has gone off.
   - The Child Lock indicator (✱) will appear between the date and time on the display panel.



2. Child Lock is automatically deactivated when you switch the recorder's power on again with the remote's OPERATE (VTR) button.
   - Pressing the TIMER button during timer-recording also deactivates the Child Lock mode.

NOTES:
- While the Child Lock mode is engaged, make sure you keep your remote control in a safe place inaccessible to children.
- Timer-recording is possible in the Child Lock mode. After timer-recording has been performed, the Child Lock mode remains in effect.

Special Operations (Cont'd)

Changing Preset Channels

TO CHECK STORED REAL CHANNELS

This is possible both at the recorder and with the remote control. First turn on the recorder.

1. Press TV PROG. to select the channel position of the stored real channel whose number you want to know. (e.g. PR. 10)
2. Press CH SET.

STORED 10

⬇

REAL Ch07

- This indicates that channel position 10 stores real channel 7.

3. To check other channel positions, press TV PROG.
   - Either "STORED xx" or "SKIPPED xx" will appear, followed by "REAL Ch xx" or "REAL CC xx".
4. The Channel Set mode will be cancelled in about 10 seconds unless you call up another channel position. Do not press the CH SET button; this alternates between Ch and CC bands.

TO DELETE STORED CHANNELS

Use the recorder's controls. First turn on the recorder.

1. Press TV PROG. to select the channel position you want to skip. (e.g. PR. 10)
2. Press CH SET.

STORED 10

3. Press SKIP.

SKIPPED 10

⬇

REAL Ch07

- This indicates that real channel 7 has been deleted from channel position 10.

TO STORE NEW CHANNELS

Use the remote control since its 10 numeric keys can access real channels and channel positions directly. (Using the recorder's auto SEARCH button will clear all preset channels.) First turn on the recorder.

1. Press VPS/CH.

REAL Ch07

2. Press VPS/CH again and keep it pressed until the real channel number starts blinking.
3. Press VPS/CH to change the band between Ch and CC, if necessary.
4. Press numeric keys to input the number of the real channel you want to store. (e.g. Ch 15.)

REAL Ch15

⬇

SKIPPED 10

5. Press numeric keys to input the number of a vacant channel position (e.g. 20), and hold the key for the 2nd entry until the display changes to "STORED 20".

STORED 20

⬇

REAL Ch15

- The Channel Set mode will be cancelled automatically after about 10 seconds.

ATTENTION

The "real channel" numbers displayed on the recorder may not correspond to channel designations in your area.

ITALY

Display	Ch	13	14	15	16	17	18	19	20	11	12
Corresponding channel		A	B	C	D	E	F	G	H	H1	H2

BELGIUM

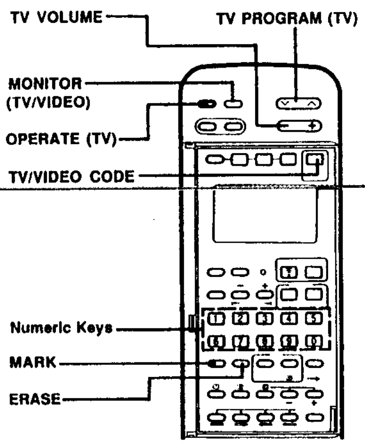
Display	CC	01	02......10	11......20
Corresponding channels		80(M1)	81(M2)...89(M10)	90(U1)...99(U10)

SWITZERLAND

Display	CC	75	76	77
Corresponding channel		X	Y	Z

Using The Remote Control For TV Operation

The provided remote control can operate the basic functions of your television. In addition to JVC televisions, other manufacturers' televisions listed here can also be controlled by setting the remote control to the corresponding TV code. The remote control's default code is "1", which enables control of most JVC televisions without re-setting. If your JVC television is equipped with 10+ and 20+ buttons on its remote control, you have to set the TV code to "9".



CODE	TV BRAND NAME
1	JVC
2	GRAETZ ITT LUXOR SALORA SELECO
3	BRANDT NORDMENDE SABA TELEAVIA TELEFUNKEN THOMSON
4	FERGUSON
5	PHILIPS
6	BLAUPUNKT GRUNDIG
7	SONY
8	PANASONIC
9	JVC

IMPORTANT

Although the provided remote control unit is compatible with JVC televisions, as well as many TV models manufactured by others, it is possible that the provided remote control will not work with your TV, or in some instances, will have limited function capability.

Setting The TV Code

1. Press TV/VIDEO CODE for longer than 2 seconds.
   - The LCD will show the current code (initially "Code 1").
2. Press a numeric key corresponding to the code number for your TV's brand.
   - The LCD will return to the clock mode after 2 seconds.

A CODE
SA
21:05
CodE 1

NOTES:

- TV code setting is not possible unless the clock has been set.
- Whenever you replace batteries in the remote control or initialise the LCD memory (☞p.4), it is necessary to re-set the TV code, if your television is not a Code 1 JVC TV.

To Control Your Television With Buttons Exclusively For TV

- Press OPERATE (TV) to turn the TV power on.
- Press MONITOR (TV/VIDEO) to switch the TV between TV and VIDEO (or AV) mode.
- Press TV PROGRAM (TV) to select the TV's channel.
- Press TV VOLUME to adjust the TV's sound volume.

NOTES:

- The TV PROGRAM (TV) button does not function with televisions using Code 3.
- The MONITOR (TV/VIDEO) button does not function with televisions using Code 4.
- With some televisions, the OPERATE (TV) button functions only to turn the TV power off, and the MONITOR (TV/VIDEO) button functions only to switch the TV to the VIDEO (AV) mode.

To Control Your Television With Additional Buttons

The numeric keys can also be used to select the TV's channel by setting the remote control to the TV mode.

A CODE
SA
21:05
DATE 06·08 TV '91

1. Press TV/VIDEO CODE.
   - "TV" will appear on the LCD.
2. Use the numeric keys and MARK/ERASE to select the TV's channel while "TV" is on the LCD.
   - With televisions using Code 1, 4, 5, 7, or 8, both the MARK and ERASE buttons correspond to the 1-digit/2-digit entry switching button (often labelled -/--) of your TV's remote control.
   - With televisions using Code 2, 6, or 9, the MARK button corresponds to the 10+ button, and the ERASE button, to the 20+ button of your TV's remote control.

NOTE:

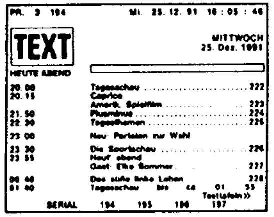
The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

Using The Optional Teletext Adapter

Teletext services have established themselves as one of the most flexible sources of information and broadcast schedules available to TV and video users. Your video recorder is ready to take full advantage of these services. By connecting an optional teletext adapter (☞ Specifications), you'll not only be able to view the vast number of teletext pages now available, you'll be able to transfer broadcast schedule data directly to your recorder's timer for instant, automatic timer programming. You'll also be able to make full use of your remote control's capabilities, with all the dual or triple function controls working as intended. Here are just a few examples of features available to you when you connect an optional teletext adapter.

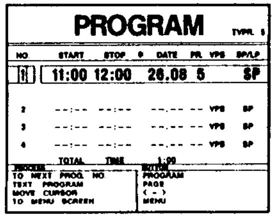
TELETEXT

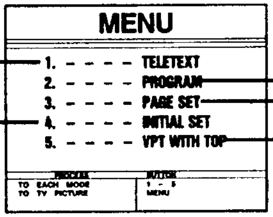
- View broadcast teletext pages.
- Several page access modes are available for quick, convenient location of pages you want to see.
- You can program the video recorder's timer directly using TV schedule pages.



PROGRAM

- Check timer recording data on the colour on-screen display.
- Program the timer manually with the remote's numeric keys.





PAGE SET

- You can preset favourite or often-referred-to pages for immediate access.
- Up to four pages can be stored on each of the numeric keys, for a total of 40 pages.

VPT WITH TOP

- TOP automatic teletext timer programming.
- Convenient colour-coded page access.
  "5.– – – – VPT WITH TOP" only appears when the video recorder's tuner is tuned to a station transmitting TOP broadcasts. (Applicable only in certain areas.)

INITIAL SET

LANGUAGE

- Select one of four languages (English, German, Italian, or Swedish) for on-screen messages.

CLOCK ADJUST

- Set the recorder's clock manually using the numeric keys.
- Set the recorder's clock automatically by reading teletext time information.

ATTENTION

Some buttons on the remote control unit are labelled with pictograms indicating the functions that can be used when the VPT adapter is connected. When reading the VPT adapter's instruction manual, keep in mind the correspondence between these pictograms and the labels referred to in the instruction manual:

⊞ : LARGE/NORMAL
⍰ : REVEAL
◷ : TIMED PAGE
⊞ : RESET
⊞ : HOLD
◪ : MIX
→ : ROTATE

List Of Display Panel Messages

Messages not appearing elsewhere in this manual are listed here. More common messages are all clearly illustrated in the relevant sections.

Displayed Message	When It Appears, What It Means
During Clock Set	
12:59	"12:59" is input for the time.
30/11/91	"30th November, 1991" is input for the date.
During Program Set	
VPS ON	"VPS" status is changed from OFF to ON. Displayed for 2 seconds.
VPS OFF	"VPS" status is changed from ON to OFF. Displayed for 2 seconds.
During Channel Set	
REAL CC 02	"Real Channel 02 in CC band" is stored.
REAL CC :15	"Real Channel 15 in CC band" is received, but not stored.
FINE -CC 15 -- --	"Fine tuning" is engaged for "Real Channel 15 in CC band".
During Normal Operation	
SPEED SP	Tape speed is changed from LP to SP. Displayed for 5 seconds.
SPEED LP	Tape speed is changed from SP to LP. Displayed for 5 seconds.
AUDIO DUB	Audio dubbing is in progress.
A DUB P	Audio dubbing is paused.
AUX INPUT	External input is selected.
AUX INPUT 2	External input 2 is selected by pressing the SIMUL/AUX 2 button from AUX INPUT.
SIMULCAST	Simulcast recording is selected by pressing the SIMUL/AUX 2 button. Displayed for 5 seconds.
REC SP AUX	Recording "External Input" via AUDIO/VIDEO in the SP mode.
REC LP AUX	Recording "External Input" via AUDIO/VIDEO in the LP mode.
REC SP AU2	Recording "External Input" via AUDIO IN in the SP mode.
REC LP AU2	Recording "External Input" via AUDIO IN in the LP mode.
PAUSE AUX	Recording is paused during REC SP (or LP) AUX.
PAUSE AU2	Recording is paused during REC SP (or LP) AU2.
REC VPS	VPS recording is in progress.
SKIP	Skip Search is started. Displayed for 5 seconds.
BLANK	Blank Search is started. Changes to REMAIN after 5 seconds.
INDEX +9	Searching for the 9th index code in the forward direction.
INDEX –4	Searching for the 4th index code in the reverse direction.
MARK	Index code is being marked.
ERASE	Index code is being erased.
REPEAT	Blinking during rewind for Repeat Playback.

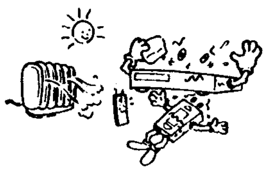
Displayed Message	When It Appears, What It Means
During Next Function Memory	
REW – OFF ↷ OFF	Will rewind to the beginning and then shut off automatically.
REW – PLAY ↷ PLAY	Will rewind to the beginning and then start playback automatically.
REW – TIMER ↷ TIMER	Will rewind to the beginning and then enter the timer mode automatically.
REW – EJECT ↷ EJECT	Will rewind to the beginning and then eject the tape automatically.
Clock and Counter Displays	
4:30:15	Tape counter reading of "4 hours, 30 minutes, 15 seconds".
31/12 10:30	It is 31st December, 10:30. (Standard date/time display when recorder power is turned off)
31/12 𝐼 10:30	Same as above with Child Lock ON.
REC LP 1:30	Recording in the LP mode with the Off Timer set to shut off in 1 hour 30 minutes.
TIMER 𝐼 10:30	It is 10:30 and the Timer Standby mode is engaged with Child Lock ON.
VPS 12:59	It is 12:59 and the VPS standby mode is engaged.
VPS 12:59	Same as above with Child Lock ON.
SET CLOCK 𝐼	The clock is not set. Please set it. The recorder is locked with Child Lock ON..
Other Messages	
GOOD MORNING ↷ GOOD AFTERNOON ↷ GOOD EVENING ↷	Automatic greetings when the recorder is turned on.
GOOD-BYE GOOD NIGHT	Automatic greetings when the recorder is turned off.

NOTE:

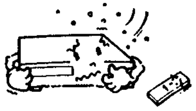
This list represents the various types of messages your recorder is capable of generating. Actual messages displayed by your recorder (esp. if date, time, channel, tape counter reading, or other variables are involved) will differ slightly from those listed here.

Precautions

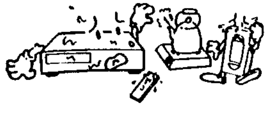
Recorder, Remote Control, And Cassette Care



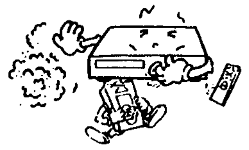
Avoid extreme heat and direct sunlight



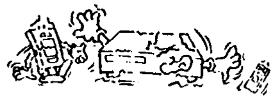
Avoid extreme cold



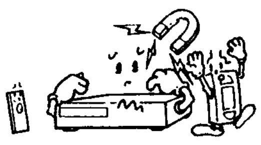
Avoid extreme humidity



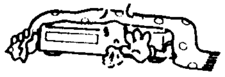
Avoid dust



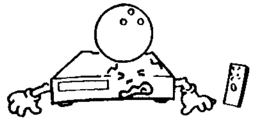
Avoid places subject to vibrations



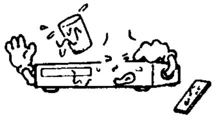
Avoid strong magnetic fields



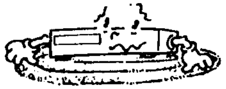
Do not block the recorder's ventilation openings



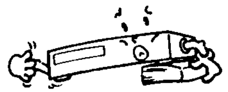
Do not place anything heavy on the recorder or remote control



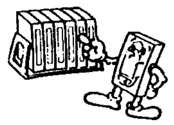
Do not place anything which might spill on top of the recorder or remote control



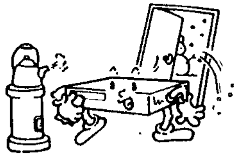
Do not place the recorder on cushions, pillows, or thick carpeting



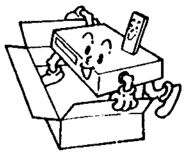
Use the recorder in a stable, horizontal position only



Place cassettes in cassette cases and store vertically



Beware of moisture condensation
Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder's power turned on for a few hours to let the moisture dry.



When transporting

- Be sure to remove cassette from recorder before packing
- Avoid violent shocks to the recorder during packing and transport

Specifications

GENERAL

Power requirement	: AC 220 – 240 V∿, 50/60 Hz
Power consumption	: 34 W
Temperature	: 5°C to 40°C (Operating) : –20°C to 60°C (Storage)
Operating position	: Horizontal only
Dimensions (WxHxD)	: 435 x 94 x 339 mm
Weight	: 5.7 kg
Format	: VHS PAL standard
Tape width	: 12.65 mm
Tape speed (SP)	: 23.39 mm/sec
Tape speed (LP)	: 11.70 mm/sec
Maximum recording time (SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO

Signal system	: PAL colour and CCIR monochrome signals, 625 lines/50 fields
Recording system	: Rotary two-head helical scan system with slant double-azimuth combination video heads
Input	: 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	: 1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio	: 43 dB (Rohde & Schwarz noise meter)
Horizontal resolution	: 250 lines

AUDIO

Input	: Mic:-67 dBs, high impedance, unbalanced : AUDIO IN connector (RCA x 2): -8 dBs, 50 k-ohms, unbalanced : AUDIO/VIDEO socket (21-pin Peri connector):-3.8 dBs, (CENELEC standard), 10 k-ohms, unbalanced
Output	: AUDIO OUT connector (RCA x 2): -6 dBs, high-impedance load less than 1 k-ohm, unbalanced (100 k-ohms, load) : AUDIO/VIDEO socket (21-pin Peri connector):-3.8 dBs, (CENELEC standard), high-impedance load less than 1 k-ohm, unbalanced

NORMAL AUDIO

Recording system	: Longitudinal track
No. of audio channels	: 1 (monaural)
Frequency range	: 70 Hz to 10,000 Hz

HI-FI AUDIO

Recording system	: Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels	: 2 Hi-Fi audio channels
Frequency response	: 20 Hz to 20,000 Hz
Dynamic range	: More than 90 dB
Wow and flutter	: Less than 0.005% WRMS

TUNER

Tuning system	: Frequency synthesized tuner
TV channel storage capacity	: 48 positions (+ AUX position "AU")
Channel coverage	: VHF 47 – 111 MHz 111 – 300 MHz 302 – 470 MHz (Hyper band for PAL) UHF 470 – 862 MHz
Aerial output	: UHF channel 36 (adjustable 32 – 40)

TIMER

Clock reference	: Quartz-crystal
Programme capacity	: 1-year/8-programme timer
Memory backup time	: 60 min.

ACCESSORIES

Provided accessories	: Aerial cable Infrared remote control unit "R6" battery x 2
Optional accessories (EG)	: VPV adapter VU-V120E VPT adapter VU-V140E
Optional accessories (E)	: VPS adapter VU-V110E VPV adapter VU-V120E VPS/VPV adapter VU-V100E VPT adapter VU-V140E VPS/VPT adapter VU-V150E

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

In Case Of Difficulties

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	■ Is the power cord disconnected? — Connect it.
Clock is functioning properly, but the recorder cannot be powered.	■ Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Tape does not run during recording.	■ Is "PAUSE" displayed on the display panel? — Press the PLAY button to extinguish the display.
Tape stops during rewind or fast-forward.	■ Is the C. MEMORY button pressed? — Press again to make "M" disappear from the display panel.
Tape will not rewind or fast-forward.	■ Is the tape already fully rewound or fast-forwarded? — Check the cassette.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	■ Is a cassette loaded? ■ Is the safety tab on the cassette removed? — Reseal the slot with adhesive tape.
TV broadcasts cannot be recorded.	■ Has "AUX" been selected? — Set to the desired channel.
Tape-to-tape editing is not possible.	■ Is the VideoMovie or another video recorder correctly connected? ■ Are all necessary power switches turned ON? ■ Has "AUX" been selected? — Set to "AUX".
Camera recording is not possible.	■ Is the VideoMovie correctly connected? ■ Has "AUX" been selected? — Set to "AUX".
Timer recording is not possible.	■ Have you set the clock correctly and programmed the timer correctly? — Check once again. ■ Is "TIMER" displayed on the display panel? — If not, press the TIMER button to display "TIMER".

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running.	■ If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel (UHF 36). (☞p.7) ■ If you are using AV connection, is the TV receiver set to the AV mode? — Set it to the AV mode.
Playback is repeated.	■ Is the REPEAT switch set to either FULL or INDEX? — Set it to OFF.
Noise appears during visual search.	■ This is normal.
Noise appears during normal playback.	■ Is the automatic tracking mode engaged? — Try manual tracking. (☞p.19)
Noise appears during slow motion playback.	— Try manual tracking. (☞p.19)
Noise appears during still playback.	— Press Pause/Still a few times to remove the noise bars from the screen.
Playback picture is blurred or interrupted while TV broadcasts are clear.	■ Video heads may be dirty. — Head cleaning is necessary. Consult your JVC dealer. (☞p.38)

HI-FI AUDIO PROBLEMS

Symptoms	Check points
TV sound cannot be recorded on Hi-Fi audio track.	■ Has the SIMUL/AUX 2 button been pressed? — Check by pressing OSD. If "SIMUL" appears on the screen, cancel it by pressing SIMUL/AUX 2 button.
Breaks are noticeable in Hi-Fi audio reproduction.	■ Is the automatic tracking mode engaged? — Try manual tracking. ☞p.19

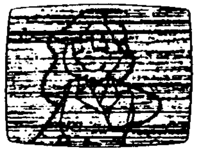
OTHERS

Symptoms	Check points
Whistling or howling is heard from TV during camera recording.	■ Move VideoMovie or camera's microphone away from TV or reduce TV sound volume.
Clock setting is not possible.	■ Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Some channels are skipped over when scanning channels.	■ Those channels are preset to be skipped over. If you need the, restore them. (☞p.31)
Channel cannot be switched.	■ Is recording in progress? — Press the PAUSE/STILL button, change the channel, and press the PLAY button.
Remote control does not function.	■ Are the batteries discharged? — Replace with new ones. ■ Is the A/B CODE indicator showing the proper code for the recorder being operated? — Press the A/B CODE button for the correct setting.
Index Search does not function properly.	■ Adjacent index codes may be too close to each other. — Erase some index codes and mark new ones if necessary, with sufficient distance between any two index codes.

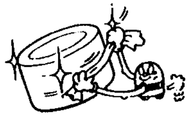
ATTENTION:

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

Special Note On Head Cleaning



Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Although this model is equipped with a built-in head cleaner which automatically cleans the heads, reducing the likelihood of dirty heads, if such troubles are encountered please consult the nearest JVC dealer.



Auto Head Cleaner

A built-in head cleaner automatically cleans the video heads and head drum whenever a tape is loaded or unloaded to reduce head clogging.

SECTION 1
DISASSEMBLY AND MECHANISM ADJUSTMENTS

1.1 DISASSEMBLY

1.1.1 Top cover

1. Take out four screws Ⓐ and a screw Ⓑ. To remove the top cover, slide in direction of arrow and lift away.

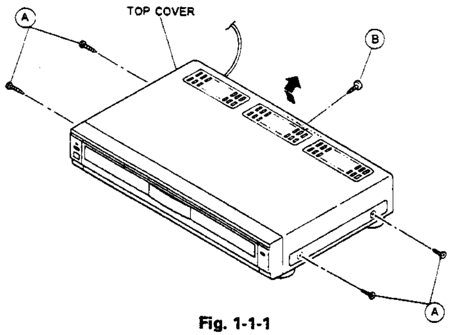


Fig. 1-1-1

1.1.2 Front panel assembly

1. Remove the top cover.
2. Carefully disengage three tabs ⓐ of the front panel assembly from the upper side of the chassis.
3. Pull the front panel assembly forward you to disengage three tabs ⓑ of the front panel assembly from the bottom side of the chassis, then remove the front panel assembly.

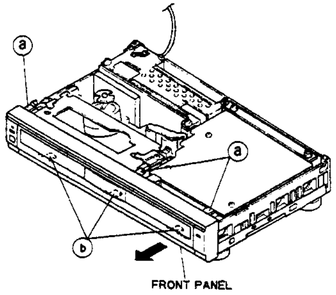


Fig. 1-1-2

1.1.3 Bottom cover

1. Remove the top cover.
2. Take out five screws Ⓒ from the bottom of the chassis.
3. Disengage four claws ⓐ from the bottom of the chassis, and disengage the bottom cover from the bottom of chassis.

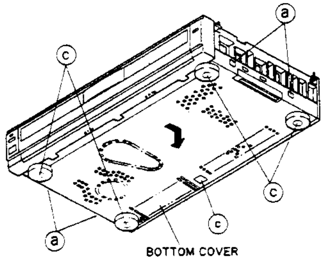


Fig. 1-1-3

1.1.4 MAIN board assembly

1. Remove the top cover.
2. Take out three screws Ⓓ, and two screws Ⓔ.
3. Take out a screw Ⓑ from terminal board, and remove the MAIN board assembly in the upward direction.

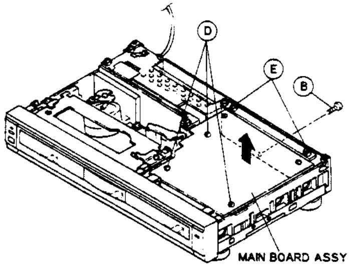


Fig. 1-1-4

1.1.5 Cassette housing

1. Remove the top cover, front panel and MAIN board assembly.
2. Take out four screws Ⓕ that secure the cassette housing.
3. Remove the cassette housing in the upward direction.

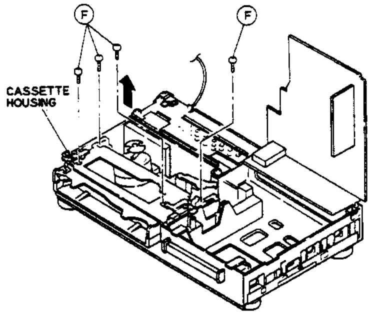

F
F
CASSETTE HOUSING

Fig. 1-1-5

1.1.6 Cassette housing installation

1. On the main deck, observe the positional relationships of the parts indicated in Fig. 1-1-6
   If necessary, turn the loading motor by hand to obtain these positions.

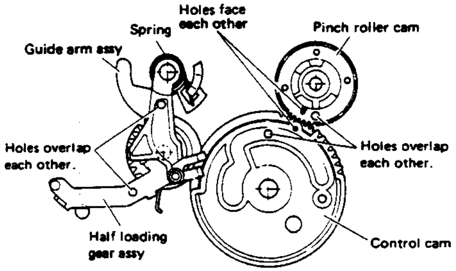

Holes face each other
Spring
Pinch roller cam
Guide arm assy
Holes overlap each other.
Holes overlap each other.
Half loading gear assy
Control cam

Fig. 1-1-6

2. Refer to Fig. 1-1-7 and confirm that the clutch is engaged.
   If necessary, press the lever indicated by the arrow to where the clutch is locked.

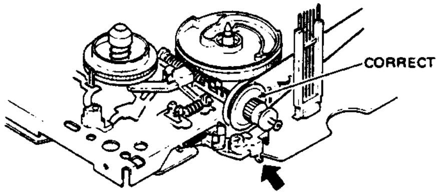


Fig. 1-1-7

3. Check that the cassette housing is in the eject state (internal holder of the cassette housing is locked in raised position).
   Set the cassette housing into place and secure with four screws.
4. Install the front panel as shown in Fig. 1-1-8 and reengage the tabs. Supply power and use a spare cassette to check for normal loading and eject operations.

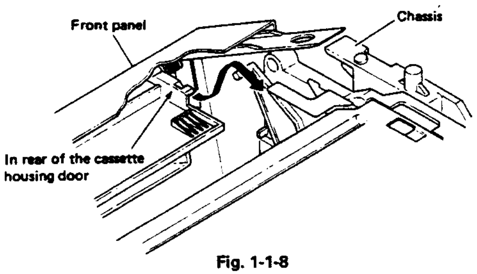

Front panel
Chassis
In rear of the cassette housing door

Fig. 1-1-8

5. Disconnect VCR from power, then reinstall the MAIN board assembly and top cover.

1.1.7 Cassette housing door

1. Remove the top cover and front panel assembly.
2. Refer to Fig. 1-1-9 with a lift of cassette housing door by hand, bend center of the cassette housing door toward you, then pull out the left end from the cassette housing.
3. Refer to Fig. 1-1-9 and use care regarding the torsion spring, then pull out the right end of the cassette housing door to move it.

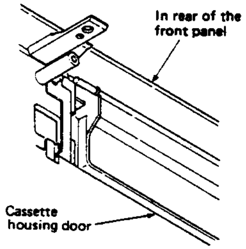

In rear of the front panel
Cassette housing door

Fig. 1-1-9

1.1.8 Main deck

1. Remove the top cover, front panel assembly and MAIN board assembly.
2. Refer to Fig. 1-1-10 and take out three screws Ⓖ from the main deck assembly.
3. Remove the main deck assembly in the upward direction and disconnect a connector CN1 from the DECK TERMINAL board, connectors CN1, CN2 from the PRE/REC board, connector CN1 from the A/C head board, connector CN1 from the LOADING MDA board and connector CN1 from the DRUM MDA board.

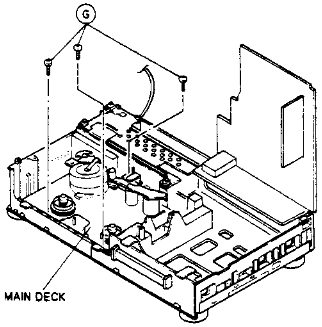


Fig. 1-1-10

1.1.9 SWITCHING REGULATOR board assembly

1. Remove the top cover.
2. Take out four screws Ⓗ from the SWITCHING REGULATOR board assembly.
3. Remove the SWITCHING REGULATOR board assembly in the upward direction.

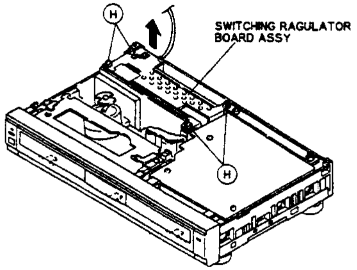

H
SWITCHING RAGULATOR BOARD ASSY
H

Fig. 1-1-11

1.2 MECHANISM ADJUSTMENTS

1.2.1 Precautions

1. Disconnect mainframe from AC power before soldering.
2. Avoid imparting stress to wires when disengaging connectors.
3. Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4. Use care not to damage tabs, claws, etc. during repairs.
5. Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
6. When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this is omitted, the door will not open at Eject and the cassette cannot be removed.

1.2.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1. Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
2. Connect pins 2 and 3 of Main board connector CN601.
3. Select the desired modes with the operation buttons. However, notice that without tape, setting for the reverse direction modes produces the Stop mode after a few seconds due to absence of the reel sensor output.

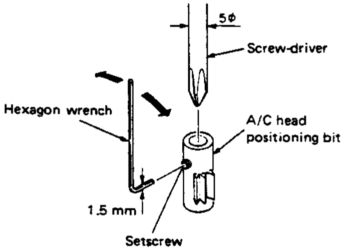


Fig. 1-2-1 A/C head positioning tool

1.2.3 Manually removing cassette tape

In event of electrical system failure that prevents the tape from being unloaded, the tape can be removed manually by the following procedure. Refer to Figs. 1-3-1, 1-3-2 and 1-3-3.

1. Disconnect power cord from AC outlet.
2. Turn the loading motor by hand so that the control cam rotates clockwise. This retracts the pole base assembly to the unloading position.
3. Continue turning to where the guide arm and half loading gear assemblies shift to beneath the cassette.
4. Turn the clutch assembly at the rear of the deck to absorb slack tape within the cassette.
5. Again turn the loading motor in the same direction to raise the cassette and remove it.

1.2.4 Test equipment

The following special tools and fixtures are required for mechanism adjustment.

1. Alignment tapes : MH-2, MH-2L and MH-F2
   Stairstep signal is employed for interchangeability checks and adjustments.
2. Torque gauge : PUJ48075-2
   Measures tape take-up torque.
3. Back tension cassette gauge : PUJ48076-2
   Measures tape tension at the supply side.
4. A/C head positioning bit : PTU94010
   - Shifts the head base for adjusting the control head position.
   - **The installation of a A/C head positioning bit on the screw-driver.**
     Refer to Fig. 1-2-1. Set screw-driver into the A/C head positioning bit where it does not interfere with adjusting the A/C head adjusting boss (position the screw-driver point 6 ± 2 mm from point of the A/C head positioning bit). Slightly tighten the setscrew by hexagon-wrench (1.5 mm).
5. Roller driver : PTU94002
   Turns the guide roller for adjusting FM linearity.
6. Presetting unit: PTU94008
   Use for LP auto tracking preset adjustment.

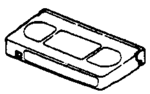
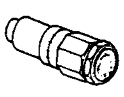
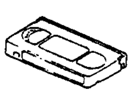
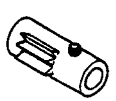
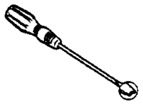
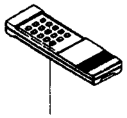
1 Alignment tapes	2 Torque gauge	3 Back tension cassette gauge	4 A/C head positioning bit	5 Roller driver	6 Presetting unit
					

Fig. 1-2-2 Test equipment

1.3 MAIN MECHANISM PARTS

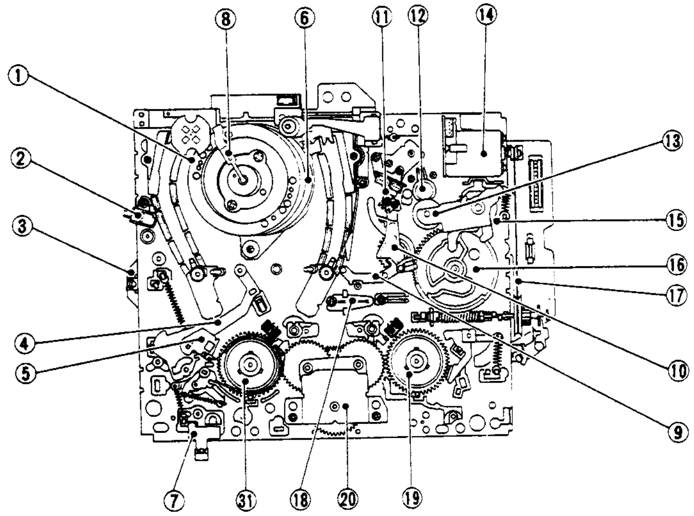


Fig. 1-3-1 Top view of main-deck

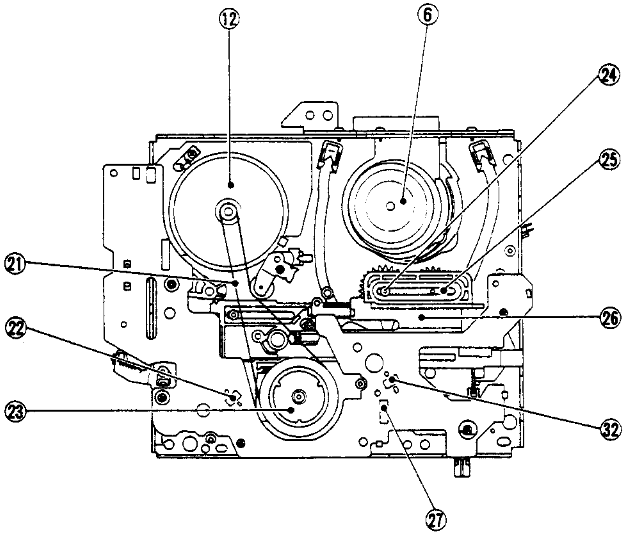


Fig. 1-3-2 Bottom view of main-deck

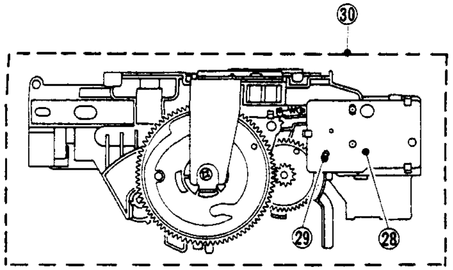


Fig. 1-3-3 Side view of cassette housing

A. Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

B. Lubrication

Oil and grease do not normally require periodic replenshing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).

For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly.

Before oiling, clean with alcohol.
Apply one or two drops of oil. Avoid excess oil.

1. Table 1-3-1 indicattes the oil and grease used in this set. Use these or recommended locally available equivalent

Category	Part No.
Oil	COSMO-HV56
Grease	KANTO-G-31KAV

Table 1-3-1

2. Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: ***Stir grease that has been stored for an extended period.***

C. Main mechanical parts

See Fig.s 1-3-1, 1-3-2 and 1-3-3.

No.	Symbol	Parts Name	See Section
1	M32A	Upper drum assy	1.5.1
2	M44	Full erase head	
3	51Q1	End sensor	
4	M41	Tension arm assy	1.5.4
5	M42	Tension band assy	1.5.4
6	M32C	Lower drum motor assy	1.5.2
7	M461	REC safety switch	
8	M32D	Brush assy	
9	M449	Half loading gear assy	1.5.5
10	M447	Guide arm assy	1.5.5
11	M48	A/C head	1.5.3
12	M422	Capstan motor	
13	M442	Pinch roller arm assy	
14	M434	Loading (Mode) motor assy	
15	M446	Pinch roller cam	1.5.5
16	M438	Control cam	1.5.5
17	M437	Loading belt	
18	M460	LED holder (D1)	
19	M430	Reel disk (take-up)	
20	M424	Idler gear unit	
21	M429	Timing belt	
22	51PS1	Take up reel sensor (PHS1)	
23	M426	Clutch unit	1.5.6
24	M433	Take up loading arm assy	1.5.7
25	M432	Supply loading arm assy	1.5.7
26	M439	Plate assy	1.5.7
27	M462	Slide switch (S3)	
28	56PHS3	Cassette sensor (PHS3)	
29	56Q2	Start sensor (Q2)	
30	M36	Cassette housing assy	
31	M470	Reel disk (supply)	
32	51PS2	Supply reel sensor (PHS2)	

- Symbol interpretation example

M32A
└ Ref. No.
└ Exploded view symbol

56 Q2
└ Ref. No.
└ Board No.

Table 1-3-2

1.4 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced when required.

1.4.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.

Also note that rubber parts may deform in time, even if the set is not used.

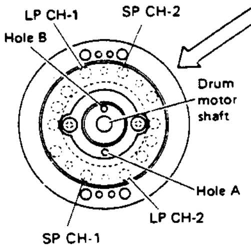
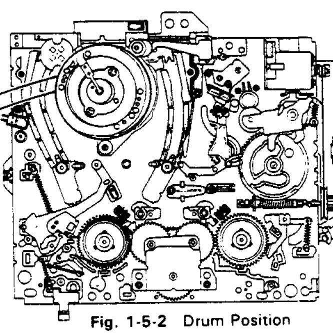
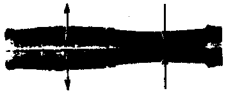
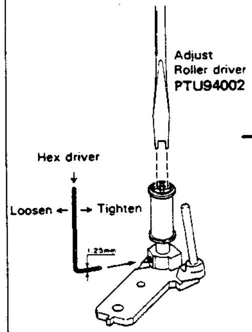
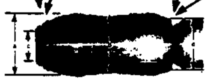
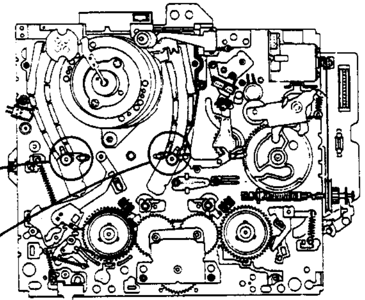
System	No.	Parts Name	Symbol No.	Periodic servicing schedule (operation hours)							
				250	500	750	1000	1250	1500	1750	2000
Tape Transport	1	Upper drum	M32A	★	★	☆	○	○	○	○	○
	11	A/C head	M48	★	★	★	○	○	○	○	○
	13	Pinch roller	M442	★	★	★	○	○	○	○	○
	2	Full erase head	M44	★	★	★	○	○	○	○	○
	4	Tension arm	M41								
	6	Lower drum	M32C				○	○	○	○	○
	12	Capstan (shaft)	M422	★	★	★	★	★	★	★	★
	9	Half loading gear	M449								
	10	Guide arm	M447								
Drive	12	Capstan motor	M422				○	○	○	○	○
	17	Loading Belt	M437				○	○	○	○	○
	21	Reel Belt	M424				○	○	○	○	○
	19	Take-up reel disk	M430				○	○	○	○	○
	31	Supply reel disk	M470				○	○	○	○	○
	23	Clutch assy	M426								○
	14	Loading motor	M434				○	○	○	○	○
		Worm clutch assy	M436								△
		Plate assy	M439								△
Others	5	Tension band	M42				○				○
	8	Brush	M32D				○				○

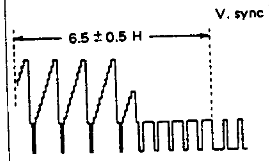
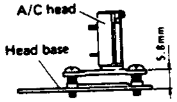
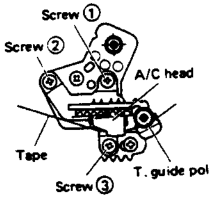
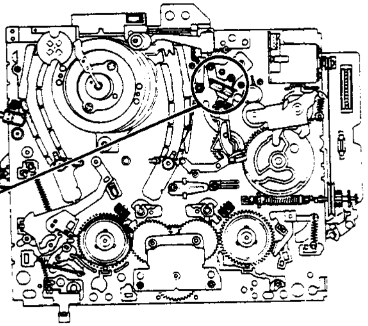
★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
No: Refer to Main mechanical parts

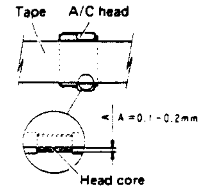
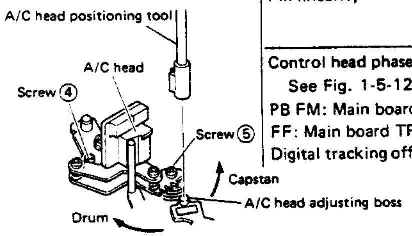
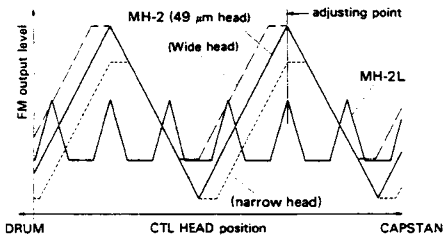
▲ : Lubrication (or Replacement if necessary)
● : Replacement
○ : Inspection or Replacement if necessary

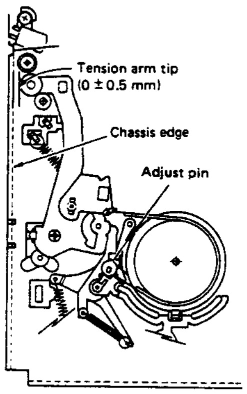
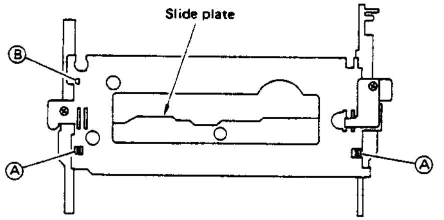
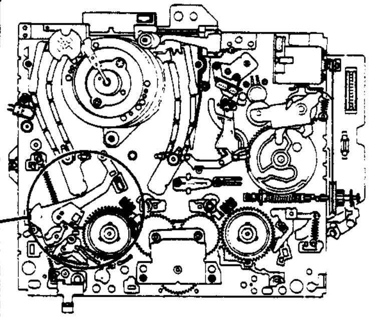
Table 1-4-1 Approximate maintenance schedule

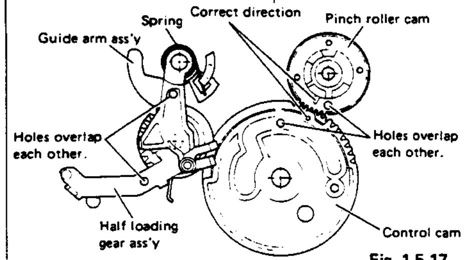
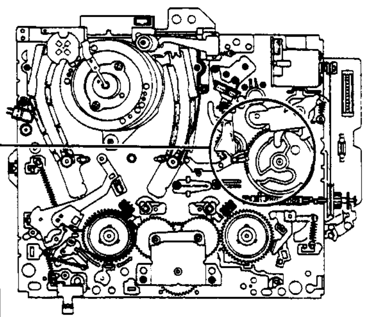
1.5 MAIN PARTS REMOVAL AND REPLACEMENT

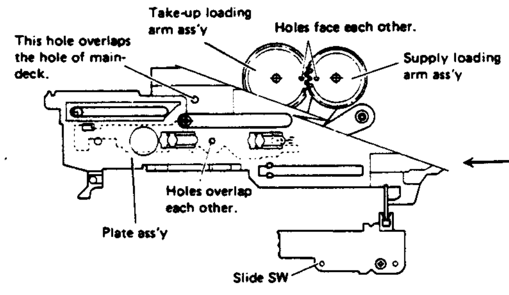
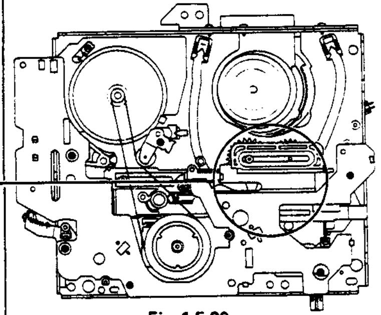
No.	Item	Checkpoints	Adjustment and Checks
1	Upper drum assembly •Symptoms: FM signal absent, intermittent or weak on one channel; large difference in channel output levels •Cause: Worn or damaged video heads, poor response, etc.  LP CH-1 SP CH-2 Hole B Drum motor shaft Hole A LP CH-2 SP CH-1 **Fig. 1-5-1** Drum top view	Mounting direction See Fig. 1-5-1. (Symptom: no picture)	 **Fig. 1-5-2** Drum Position After replacing, observe that upper drum hole A is opposite the motor axis from lower drum hole B.
		Axis wobble See Fig. 1-5-2. (Symptom: jitter, poor FM linearity) PB FM: Main board TP206 FF: Main board TP411	Record and playback in LP mode. Confirm absence of large difference between channels. (Fig. 1-5-3)  **Fig. 1-5-3** Axis wobble
	 Adjust Roller driver PTU94002 Hex driver Loosen Tighten 1.25mm **Fig. 1-5-4** S.T. Pole base	FM linearity check See Fig. 1-5-5. (Symptom: vertical sync absent, picture noise) PB FM: Main board TP206 FF: Main board TP411  **Fig. 1-5-5** FM linearity $\frac{b}{a} \geqq 0.7, \frac{c}{a} \geqq 0.65, \frac{d}{a} \geqq 0.65$	 **Fig. 1-5-6** S.T. Pole base position 1) Play stairstep signal of the MH-2 Alignment Tape. Confirm absence of obvious FM waveform loss and that operating the Tracking yields the optimum point. 2) Refer to Fig. 1-5-4, adjust for loss at the left edge (drum entry) of the FM waveform by turning the guide roller of the supply pole base. Similarly, adjust for loss at the right edge (drum exit) by turning the guide roller of the take-up pole base. **Note:** ***If FM loss occurs on both channels and cannot be corrected by adjusting the guide rollers, the lower drum needs replacement.***

No.	Item	Checkpoints	Adjustment and Checks
	PB switching point •Symptom: switching noise at picture bottom.	TP210 (VIDEO OUT)  **Fig. 1-5-7** PB Switching Point	1) Connect an oscilloscope to TP210. 2) Set the MH-2 alignment tape into the cassette housing. Play back the stairstep segment of MH-2 alignment tape. 3) Trigger the oscilloscope externally (– slope) with the signal from TP411 (DRUM FF) of the main board. 4) Adjust R420 to position the trigger point 6.5 H ±0.5 H from V. sync as shown in Fig. 1-5-7.
2	Lower drum assembly •Symptoms: Poor FM linearity, noisy rotation, jitter •Cause: Lead and bearing wear	Check FM linearity and switching point.	See above upper drum assembly items.
		Check control head phase (X value) Symptom: tracking error PB FM: Main board TP206 DRUM FF: Main board TP411	1) Play stairstep signals of MH-2 Alignment Tape. Engage the Tracking Preset mode by pressing the + and – buttons simultaneously in the onscreen mode. Confirm that the same maximum FM waveform level is obtained as when the tracking is adjusted manually. 2) Refer to the A/C head adjustments.
3	**A/C head**  **Fig. 1-5-8** Temporary height  Screw ① Screw ② A/C head Tape T. guide pole Screw ③ **Fig. 1-5-9** Inclination/Azimuth/ Height adj.	 **Fig. 1-5-10** A/C HEAD position	
		Temporarily set height as indicated in Fig. 1-5-8.	Set the height as indicated in Fig. 1-5-8 to facilitate tape transport checks and adjustments.
		Tilt (forward inclination) See Fig. 1-5-9. (Symptom: audio level varies greatly.)	1) Run tape, turn screw ① counterclockwise to where slight curling of the tape occurs at the lower flange of the take-up guide roller. 2) Then slowly turn the screw clockwise to where the curling ceases.
		Azimuth See Fig. 1-5-9. (Symptoms: audio low level or noisy) Audio output: Main board AUDIO OUT	1) Play stairstep signal (with audio 6 kHz) of the MH-2 Alignment Tape. Observe audio output signal with oscilloscope. 2) Turn screw ② and adjust for maximum audio output level.

No.	Item	Checkpoints	Adjustment and Checks
	 **Fig. 1-5-11** Height Adj	Height See Fig.s 1-5-9 and 1-5-11. (Symptom: low audio and control signal levels)	1) Run tape and observe the control head area. 2) Turn screws ①, ② and ③ by small and equal amounts until 0.1 to 0.2 mm of the head core bottom can be seen. **Note:** *If difficult to observe, play stairstep signal of MH-2 Alignment Tape and adjust for maximum audio output and control pulse level.*
	 A/C head positioning tool A/C head Screw ④ Screw ⑤ Capstan A/C head adjusting boss Drum **Fig. 1-5-12** CTL head phase	FM linearity	Refer to upper drum assembly items. If adjustment is major, again check the azimuth.
	 **Fig. 1-5-13** CTL head phase **Note:** *Trigger the oscilloscope externally signal from TP411 (DRUM FF). Use (+) trigger for MH-2 and MH-2L alignment tape. Narrow head is employed for this model.*	Control head phase See Fig. 1-5-12 PB FM: Main board TP206 FF: Main board TP411 Digital tracking off	1) Play stairstep signal of MH-2 Alignment Tape and observe the FM waveform. Set for Digital tracking off by pressing the "V CH" and "Λ CH" buttons simultaneously in the playback mode. 2) Loosen screws ④ and ⑤. Set the A/C head positioning tool on the A/C head adjusting boss as shown in Fig. 1-5-12. 3) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig. 1-5-13. 4) Tighten screw ⑤ . Remove the tool and tighten screw ④. 5) Play stairstep signal of MH-2L Alignment Tape and confirm maximum FM waveform output level as shown in Fig. 1-5-13. 6) If not maximum, slightly loosen screws ④ and ⑤. Use the tool and adjust the head position for the nearest maximum point. Then tighten screws ④ and ⑤.
		LP auto tracking adjustment	1) Terminate the video output at 75 ohms with a monitor-TV and connect oscilloscope to PB FM (TP206). 2) Set MH-2L Alignment Tape into the cassette housing and play the stairstep signal. 3) Confirm that the A/V digital tracking LED changes from flashing to lighted. 4) Press button "D" of the presetting unit (PTU94008) to extinguish the A/V digital tracking LED. 5) Again press button "D" to enter the LP interchangeability adjust mode. Confirm that the A/V digital tarcking LED changes from flashing to extinguished. Press the stop button. **Note:** *If the Alignment Tape ejects automatically, repeat the control head phase adjustment.* *Set VCR to A mode by remote controller.*

No.	Item	Checkpoints	Adjustment and Checks
4	Tension arm assembly Tension band assembly  Tension arm tip (0 ± 0.5 mm) Chassis edge Adjust pin **Fig. 1-5-14** Tension arm assy  **Fig. 1-5-16** Cassette housing	Tension pole position See Fig. 1-5-14. (Symptom: poor FM waveform response)	 **Fig. 1-5-15** Tension arm position 1) Remove video cassette tape and set for the playback mode as following steps. 2) Disconnect VCR from AC. Slightly rotates the loading motor counterclockwise by hand, then press the lock level portion Ⓐ of the cassette housing by hand as shown in Fig. 1-5-16. 3) Move the raised portion of the cassette housing slide plate to fully forward by hand with loading motor. At this time, again press the lock level portion Ⓑ of the cassette housing slide plate to lower the cassette housing (internal holder of the cassette housing is locked in lowered position). 4) Cover the cassette LED with opaque material (insulated tape with black). 5) Connect VCR to AC. Press the power button on the Front panel and set for the playback mode. 6) Turn the eccentric adjust pin to align the edge of the chassis with the tension arm tip as shown in Fig. 1-5-14.
		Back tension (Symptom: skew)	1) When the tension pole position is correctly adjusted, the back tension will assume the correct value. 2) Use the Back Tension Cassette Gauge and set for the playback mode. Confirm reading of 35 to 48. 3) Changing the tension pole position in order to vary the back tension will cause adverse effects elsewhere.

No.	Item	Checkpoints	Adjustment and Checks
5	Pinch roller cam Control cam Half loading gear assembly Guide arm assembly		Set mechanism to Eject mode (internal holder of the cassette housing is locked in raised) position.
	 Spring Correct direction Pinch roller cam Guide arm ass'y Holes overlap each other. Holes overlap each other. Half loading gear ass'y Control cam **Fig. 1-5-17** Control/Pinch roller cam	Important: Do not remove or disturb parts other than those mentioned. See Fig. 1-5-17.	 **Fig. 1-5-18** Control cam position 1) When installing the pinch roller cam, overlap the largest hole of the gear portion with the hole of the deck. 2) Set the control cam on the deck with the hole of the groove overlapped with the hole of the deck. Observe that the small hole of the control cam and the ridge of the pinch roller cam are aligned. (If the control cam does not fit readily, shift the rear plate assembly within the range of play.) 3) Install the half loading gear assembly with the hole overlapped with the hole of the deck. Secure with E-ring. 4) Install the guide assembly over the spring and with the hole overlapping that of the deck. Engage the spring correctly.
		Cassette housing assembly	Install the cassette housing assembly with the mechanism in the Eject mode. Also observe that the inner holder of the housing is raised and locked.
6	Clutch assembly	Take-up torque (Symptom: inadequate take-up torque)	1) Remove cassette housing and set for playback mode (see Section 1.2.2). 2) Set torque gauge on the take-up reel disk. Gradually relax your grip on the gauge and read the needle indication at the point the gauge begins to rotate with the disk. Confirm indication of 60 to 100.

No.	Item	Checkpoints	Adjustment and Checks
7	Take-up loading arm assembly Supply loading arm assembly Plate assembly		Notes: • *Set mechanism to the Eject or Stop mode before removing these parts.* • *The flange of the plastic rivet securing the loading arm assembly and the pole base assembly can be damaged by attempting to remove it directly. Press the loading arm assembly firmly to prevent motion. Then use a narrow-shafted tool to press the rivet from the shaft end to remove it.*
		Mounting position alignment • Remove the tension arm assembly to facilitate operation. See Fig. 1-5-19	1) Set the supply and take-up loading arm assemblies so that the holes of the gear portions are aligned, then secure to the pole base assemblies with rivets. 2) Shift the plate assembly and install with the holes of the upper and lower components overlapped.
		Slide switch See Fig. 1-5-19 .	Be sure to engage the slide switch slider with the edge of the plate assembly.
	 Take-up loading arm ass'y Holes face each other. This hole overlaps the hole of main-deck. Supply loading arm ass'y Holes overlap each other. Plate ass'y Slide SW **Fig. 1-5-19** T.S. Loading arm and Plate position		 **Fig. 1-5-20** T.S. Loading arm position

SECTION 2
ELECTRICAL ADJUSTMENTS

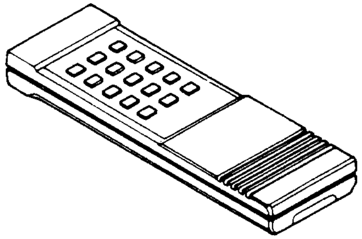
2.1 PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

2.1.1 Required test equipment

1. Colour television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Audio oscillator
5. Audio voltmeter
6. Digital voltmeter
7. Signal generator: RF/IF sweep/marker
8. Signal generator: PAL colour bar, stairstep, video sweeper
9. Signal generator: Audio multiplex TV signal generator
10. Recording tape
11. Alignment tape: MH-2, MH-2L and MH-F2
12. Presetting unit: PTU94008.

Presetting unit



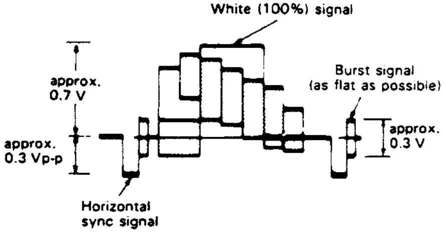

White (100%) signal
approx.
0.7 V
Burst signal
(as flat as possible)
approx.
0.3 V
approx.
0.3 Vp-p
Horizontal
sync signal

Fig. 2-1-1 Colour bar signal of pattern generator

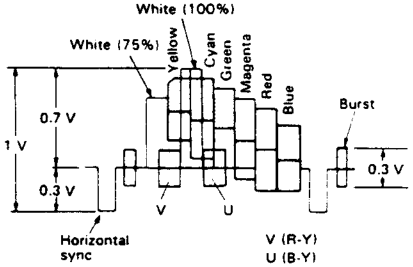

White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
0.7 V
1 V
0.3 V
0.3 V
V
U
Horizontal
sync
V (R-Y)
U (B-Y)

Fig. 2-1-2 Colour bar signal waveform

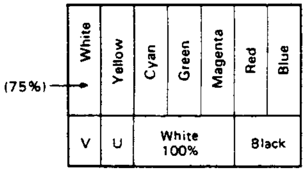

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
V
U
White
100%
Black

Fig. 2-1-3 Colour bar pattern

2.1.2 Check and adjustment steps

The check and adjustment steps are provided in the following in the form of charts. For clarity, the nomenclature used in the charts is outlined below.

No.	Checks and adjustments are numbered in the recommended sequence in which they are to be performed.
Item	Name assigned to the particular check and adjustment step.
Check Point	Location to which measuring instrument (oscilloscope unless otherwise noted) is to be connected.
Adjustment Parts	Variable component (resistor, capacitor, etc.) to be adjusted in this step. Dash (–) indicates check only.
Signal & Mode	• Input signal required to perform adjustment. Dash (–) indicates that special signal is not required. • Equipment operating mode at time of check or adjustment.
Colour bar	Colour bar signal as video input.
Stairstep	Stairstep signal as video input.
1 kHz	1 kHz sinewave as audio input signal.
MH-2 colour bars	Colour bars segment of MH-2 alignment tape.
MH-2 stairstep	Stairstep segment of MH-2 alignment tape.
MH-2 1 kHz	1 kHz audio signal segment of MH-2 alignment tape.
MH-2 RF sweep	RF sweep segment of MH-2 alignment tape.
MH-2L colour bars	Colour bars segment of MH-2L alignment tape.
MH-2L stairstep	Stairstep segment of MH-2L alignment tape.
MH-2L RF sweep	RF sweep segment of MH-2L alignment tape.
MH-2H colour bars	Colour bars segment of MH-2H alignment tape.
MH-F2 stairstep	Stairstep segment of MH-F2 alignment tape.
MH-F2 1 kHz	1 kHz FM audio signal segment of MH-F2 alignment tape.

AUX	External input mode
TUNER	Tuner mode
EE	Power on and machine in Stop mode.
REC	Recording mode
PB	Playback mode
SEARCH	Search (FWDS and REVS) playback mode
SLOW	Slow motion playback mode
STILL	Pause during playback mode
A DUB	Audio dubbing mode
SP mode	SP recording speed
EP mode	EP recording speed
LP mode	LP recording speed
S-VHS mode	Super-VHS recording mode
VHS mode	VHS recording mode
Description	This column provides an explanation of the step, notes and adjustment values.

2.2 SWITCHING REGULATOR CIRCUIT

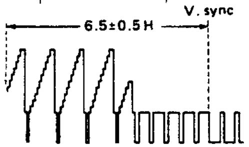
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	5V DC output voltage	• EE		•Q806-B •TP803 (GND) 0 3 MAIN	• R811 (SWD 5V) 0 3 MAIN	1) Connect a digital voltmeter between Q806-B and TP803. 2) Adjust R811 for 5.30 ± V DC.

2.3 TIMER CIRCUIT

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Clock	• EE		• IC1-16 2 0 TIMER	• C6 (CLOCK) 2 0 TIMER	**Note:** ***For below adjustments use 10:1 probe with input capacitance lessthan 100 pf.*** 1) Disconnect VCR from AC. Connect a frequency counter between IC1-16 and GND. 2) Short IC1-8 to GND, then short the leads of capacitor C3 once in order to reset IC1. 3) Connect VCR to AC. All FDP Segments are on. 4) Adjust C6 for 2048.000±0.002 Hz (488.2808 to 488.2818 μs).

2.4 SERVO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the 03 MAIN board.*

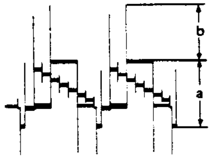
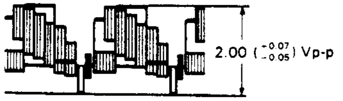
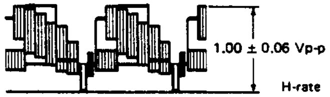
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	SP PB switching point	• PB	• MH-2 stairstep • SP • Auto tracking : off  **Fig. 2-4-1** PB switching point	• TP210 (VIDEO OUT)	• R420 (PB SW POINT)	1) Connect an oscilloscope to TP210. 2) Playback the stairstep segment of MH-2 alignment tape. 3) Trigger the oscilloscope externally (– slope) with the signal from TP411. 4) Adjust R420 to position the trigger point 6.5 ± 0.5 H from V. sync.
2	SP slow tracking preset	• REC ↓ PB (slow)	• AUX colour bar • SP	• TV monitor	• Presetting unit (PTU94008)	**Note:** *Set VCR to A mode by remote controller.* 1) Set recording video tape into the cassette housing. 2) Supply a colour bar signal to VIDEO IN. 3) Record a colour broadcast or colour bar signal in the SP mode 4) Play back recorsded signal in the fwd and rev slow mode and set the tracking control of the front panel to the center position by simultaneously pressing the (+) and (–) reacking buttons. 5) Observe the display one a monitor-TV and adjust for optimum noise condition (best tracking) by depressing "B (–)" or "C (+)" buttons of presetting unit as required. 6) Depress the stop button on the front panel. 7) Confirm that the bar noise is not visible on the monitor in the slow mode.
3	LP slow tracking preset	• REC ↓ PB (Slow)	• AUX colour bar • LP	• TV monitor	• Presetting unit (PTU94008)	1) In the same manner as the above SP slow mode.

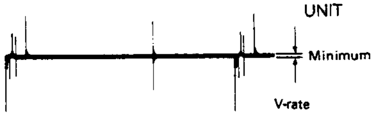
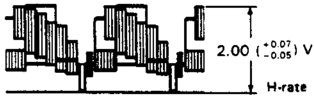
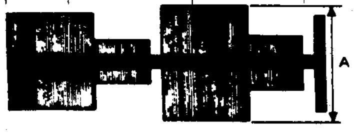
2.5 VIDEO CIRCUIT

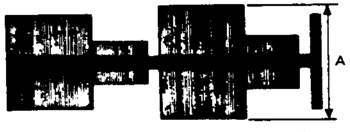
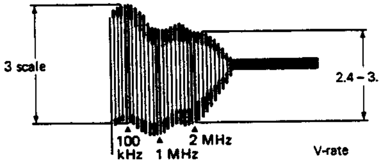
Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the 03 MAIN board.*

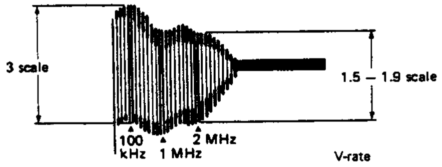
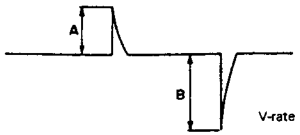
IMPORTANT: Item 1,2,3 and 4

1. Ordinarily avoid performing these adjustments. It should be performed only if IC1 of the VIDEO UNIT board has been replaced.
2. To adjust, replace fixed resistor with variable resistor, then adjust as required.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	EE level & White clip	• EE	• AUX colour bar  a : b = 100 : 90 **Fig. 2-5-1** White clip	• CN207-15 • IC1-22 05 VIDEO UNIT	• R60 (EE Y LEVEL) • R54 (WHITE CLIP) 05 VIDEO UNIT	1) When IC1 of the VIDEO UNIT board is replaced, it may also be necessary to replace R60 and R64 with adjustable resistors. 2) Confirm 2.00 $(^{+0.07}_{-0.05})$ Vp-p EE level at CN207-15 and white clip of 90 ± 4% at IC1-22. If necessary, replace R60 with NVP1301-103N and R64 with NVP1301-332N. 3) Supply a colour bar signal to VIDEO IN, connect one channel of a dual trace oscilloscope to CN207-15 and the other channel to IC1-22. 4) Alternately adjust R60 and R64 for 2.00 $(^{+0.07}_{-0.05})$ Vp-p at CN207-15 and white clip of 90 ± 4% at IC1-22.  **Fig. 2-5-2** VIDEO OUT
2	Carrier & Deviation	• EE	• AUX No signal	• CN206-9	• R41 (CARRIER) 05 VIDEO UNIT	1) When IC1 of the video unit board is replaced, it may also be necessary to replaced R41 and R42 with adjustable resistors. 2) Play back a colour bar segment of MH-2 and confirm 1.00 (±0.06) Vp-p Y level at VIDEO OUT (75Ω load). If necessary, replace R41 with NVP1301-223N and R42 with NVP1301-103N. 3) Without an incoming signal. Terminate VIDEO OUT with TV-monitor (75Ω load), connect a frequency counter to CN206-9 on the MAIN board. 4) Adjust R41 for 3.8 ± 0.04 MHz. 5) Play back a colour bar segment of MH-2, and confirm 1.00 (±0.06) Vp-p at VIDEO OUT. If necessary, redplace R17 with NVP1301-222N. 6) Record and play back a colour bar signal. If necessary, before recording, adjust R42 so that the Y level becomes 1.00 (±0.06) Vp-p at VIDEO OUT during playback mode.
	IMPORTANT: **Ordinarily avoid performing this adjustment. It should be performed only if IC1 of the VIDEO UNIT board has been replaced or if significant waveform distortion and S/N deterioration occur during recording and playback due to deficient adjustment of the carrier set and deviation.**	• REC ↓ PB	• AUX colour bar • SP  **Fig. 2-5-3** Carrier and deviation	• TP210 (VIDEO OUT)	• R42 (DEVIATION) 05 VIDEO UNIT	

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
3	YNR NC balance  Fig. 2-5-4 YNR NC balance	• EE	• AUX colour bar	• IC1-9 0 5 VIDEO UNIT	• R56 (NC BALANCE) 0 5 VIDEO UNIT	1) When IC1 of the video unit board is replaced, it may also be necessary to replace R56 with adjustable resistor. 2) Supply a colour bar signal to VIDEO IN, connect an oscilloscope to IC1-9 on the VIDEO UNIT board. 3) Confirm minimum DC step difference. If necessary, replace R56 with NVP1301-152N. 4) Adjust R56 for minimum DC step difference.
4	PB Y level  Fig. 2-5-5 PB Y level	• REC ↓ PB	• AUX colour bar • SP	•CN207-15	• R17 (PB Y LEVEL) 0 5 VIDEO UNIT	1) When IC1 of the video unit board is replaced, it may also be necessary to replace R17 with adjustable resistor. 2) Record and play back a colour bar signal, confirm 2.00 ($^{+0.07}_{-0.05}$) Vp-p Y level at CN207-15. If necessary, replace R17 with NVP1301-222N. 3) Connect oscilloscope to CN207-15. 4) Record and play back a colour bar signal, adjust R17 for 2.00 ($^{+0.07}_{-0.05}$) Vp-p at CN207-15.
5	SP REC colour level	• PB	•MH-2 colour bar •SP •Auto tracking: off	• IC1-41 0 5 VIDEO UNIT	• R215 (SP REC COLOUR LEVEL)	1) Connect an oscilloscope to IC1-41 and observe colour signal level. 2) Set the MH-2 alignment tape into the cassette housing, play back the colour bar segment of MH-2 alignment tape. 3) Set the tracking of the front panel to the Auto tracking off position by simultaneously pressing the (+) and (–) tracking buttons. 4) Adjust by pressing the (+) and (–) tracking buttons of the front panel for maximum level of the colour waveform and make a note of the higher colour level "A". 5) Press the STOP button on the front panel and eject the MH-2 alignment tape. 6) Set recording video cassette into the cassette housing. Supply a colour bar signal to VIDEO IN. 7) Trigger the oscilloscope externally with the signal from TP411 (DRUM FF) of the main board. Use (–) trigger for CH1 and (+) trigger for CH2. 8) Record a colour bar signal in the SP mode. 9) Play back recorded colour bar signal. Set the tracking of the front panel to the auto tracking off position by simultaneously pressing the (+) and (–) tracking buttons and confirm 100 ± 5% of the noted colour level at IC1-41. If necessary, before recording, adjust R215 so that the higher level channel becomes100 ± 5% of the noted level "A" during play back as shown in Fig. 2-5-6. **Note**: ***Repeat the above step (9) several times.***
	 Fig. 2-5-6 REC colour level	• REC ↓ PB	• AUX colour bar			

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
6	LP REC Colour level	•PB	•MH-2L Colour bar •LP •Auto tracking: off	• IC1-41 0 5 VIDEO UNIT	• R222 (LP REC COLOUR LEVEL)	**Note:** *Perform the LP mode adjustment after completing that for the SP mode.* 1) Connect an oscilloscope to IC1-41. Playback the colour bar segment of the MH-2L and observe colour signal level. 2) Adjust by pressing the (+) and (–) tracking buttons of the front panel for maximum level of the higher colour level "A". 3) Set the tracking control of the front panel to the preset position by simultaneously pressing the (+) and (–) tracking buttons. 4) Record and play back the colour bar signal. If necessary, before recording, adjust R222 so that the higher level channel becomes 85 ± 5% of the noted level "A" during play back as shown in Fig. 2-5-7.
	 Fig. 2-5-7 REC colour level	• REC ↓ PB	• AUX colour bar			
7	SP VIDEO EQ  Fig. 2-5-8 PB frequency	• REC ↓ PB	•Video sweep •SP •Auto tracking: off	• TP210 (VIDEO OUT)	• R208 (SP VIDEO EQ)	1) Terminate VIDEO OUT with monitor - TV (75 Ω load), supply a video sweep signal without burst to VIDEO IN. 2) Set recording video cassette into the cassette housing. Record a video sweep signal without burst in the SP mode. 3) Connect an oscilloscope to TP210. Play back recorded video sweep signal in the SP mode, set the tracking of the front panel to the auto tracking off position by simultaneously pressing the (+) and (–) tracking buttons. 4) Use the control of the oscilloscope to position the 100 kHz region at graduation 3 (0 dB) of the oscilloscope scale. 5) Adjust R208 to position the 2 MHz of channel-1 portion at 2.4 — 3.0 (– 1 ± 1 dB) of the oscilloscope graduations as shown in Fig. 2-5-8.
			•TV broadcast •Auto tracking: off	•TV monitor	• R208 (SP VIDEO EQ)	**Alternate method** 1) Set recording video cassette into the cassette housing, receive a colour broadcast. 2) Record a colour broadcast that shows a good depiction of human facial contours. 3 Play back recorded colour broadcast, set the tracking of the front panel to the auto tracking off off position by simultaneously pressing the (+) and (–) tracking buttons. 4) Adjust R208 to obtain distinct facial features on the monitor. **Note:** ***R208 nearly at centre position.***

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
8	LP VIDEO EQ  Fig. 2-5-9 PB frequency	• REC ↓ PB	• Video sweep • LP • Auto tracking: off	• TP210 (VIDEO OUT)	• R207 (LP VIDEO EQ)	1) Terminate VIDEO OUT with monitor-TV (75Ω load), supply a video sweep signal without burst to VIDEO IN. 2) Set recording video cassette into the cassette housing. Record a video sweep signal without burst in the LP mode. 3) Connect an oscilloscope to TP210. Play back recorded video sweep signal in the LP mode, set the tracking of the front panel to the auto tracking off position by simultaneously pressing the (+) and (–) tracking buttons. 4) Use the control of the oscilloscope to position the 100 kHz region at graduation 3 (0 dB) of the oscilloscope scale. 5) Adjust R207 to position the 2 MHz of channel-1 portion at 1.5 – 1.9 (–5 ± 1 dB) of the oscilloscope graduations as shown in Fig. 2-5-9.
			• TV broadcast • Auto tracking off	• TV monitor	• R207 (LP VIDEO EQ)	**Alternate method** **1) Set recording video cassette into the cassette housing, receive a colour broadcast.** **2) Record a colour broadcast that shows a good depiction of human facial contours.** **3) Play back recorded colour broadcast, set the tracking of the front panel to the auto tracking off position by simultaneously pressing the (+) and (–) tracking buttons.** **4) Adjust R207 to obtain distinct facial features on the monitor.**
9	SECAM DET (E/EG)  Fig. 2-5-10 SECAM DET	• EE	• AUX colour bar (SECAM)	• TP280 (SECAM DET)	• L282 (SECAM DET)	1) Connect an oscilloscope to TP280. 2) Adjust L282 so that A and B are related as follows: A : B = 3 : 4

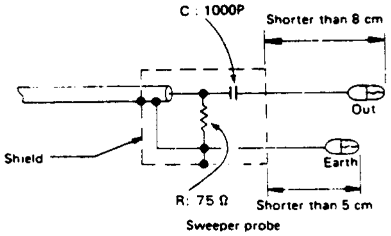
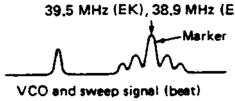
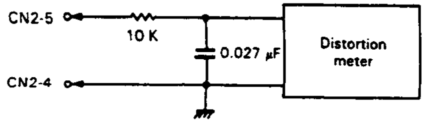
2.6 AUDIO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment points are located on the [0] [9] AUDIO UNIT board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Audio bias level	• REC	• AUX No signal • SP	• TP31(+) • TP32(–) [0] [3] MAIN	• R20 (BIAS) [0] [3] MAIN	1) Connect a millivoltmenter between TP31 (INPUT) and TP32 (GND). 2) Set for REC mode without incoming signal. 3) Adjust R20 for 2.5 mVrms.
2	EE level	• EE	• AUX 1 kHz • Audio monitor: HI-FI • HI-FI REC BALANCE: Center • HI-FI REC LEVEL: Center	• AUDIO OUT	• R72 (L EE LEVEL) • R76 (R EE LEVEL) [0] [3] MAIN	1) Supply a sine wave of 1 kHz, –8 dBs (0.9 Vp-p, 0.32 Vrms) to the Peri. In terminal. 2) Adjust R72 and R76 so that output level of both channels L and R are –6 dBs (1.1 Vp-p, 0.39 Vrms) ± 1 dBs, respectively.
	• ***This circuit use fixed resistors. If IC1 of the AUDIO UNIT board is replaced, these may require replacement with variable reisstors to allow adjustment.***					
3	Carrier	• EE		• IC1-22 (L CH) • IC1-39 (R CH)	• R27 (L CARRIER) • R41 (R CARRIER)	1) Connect a frequency counter to pin 22 of IC1, and confirm that the frequency is 1.4 MHz ± 5 kHz. 2) If necessary, replace R27 with the variable resistor NVP1301-103N, and adjust them for 1.4 MHz ± 5 kHz. 3) Connect a frequency counter to pin 39 of IC1, and confirm that the frequency is 1.8 MHz ± 5 kHz. 4) If necessary, replace R41 with the variable resistor NVP1301-332N, and adjust it for 1.8 MHz ± 5 kHz.
	• ***This circuit use fixed resistors. If IC1 of the AUDIO UNIT board is replaced, these may require replacement with variable reisstors to allow adjustment.***					
4	PB level	• PB	• MH-F2 1 kHz • Auto tracking: off • Audio monitor: HI-FI	• AUDIO OUT	• R24 (L REC LEVEL) • R44 (R REC LEVEL)	1) Connect an audio tester to audio out (left channel). Play back the 1 kHz segment of the alignment tape. 2) Confirm that output level is –8 dBs (0.9 Vp-p, 0.32 Vrms) ± 2 dBs. 3) If necessary, replace R24 and R44 with the variable resistor NVP1301-153N respectively, and adjust them for –8 dBs.

2.7 TUNER/IF CIRCUIT

Note: ***Unless otherwise specified, all measurement points and adjustment parts are located on*** $\boxed{0}$ $\boxed{8}$ ***TUNER/IF board.***

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
Equipment required: 1. Oscilloscope 2. IF sweep signal generator with suitable markers (PIF, etc.) 3. Sweeper probe (sweep signal supply cable) as shown below.						 C : 1000P Shorter than 8 cm Out Shield Earth R: 75 Ω Shorter than 5 cm Sweeper probe Fig. 2-7-1
1	VCO	• EE	• TUNER	•IC1-17	•T1 (VCO)	1) Use a sweeper probe as shown in Fig. 2-7-1 and connect the sweep generator output to pin 1 of SAW 1. 2) Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope. 3) Connect the oscilloscope to pin 17 of IC1 (VIDEO DET OUT) and adjust T1 to align the waveform with the frequency marker as shown in Fig. 2-7-2.
	 Fig. 2-7-2					
			•TUNER •TV broadcast	•TV monitor	•T1	**Alternate method:** 1) Receive a colour broadcast. 2) Adjust T1 to obtain a fine picture on the monitor.
• **Before the following adjustments:** 1. Connect a cable to ANT IN and terminate TV OUT at 75 Ω. 2. Set a TV channel signal generator as follows. Video: 65 dBμ/75 Ω, colour bar 87.5% modulation Audio: 55 dBμ/75 Ω, 1 kHz ± 50 kHz deviation						
2	RF AGC	• EE	• TUNER • TV broadcast	•TV monitor	• R72 (RF AGC)	1) Connect the oscilloscope to IF terminal of U/V Tuner (Front end). Adjust R72 for maximum level, then again adjust R72 for − 8 dB again.
						Alternate method: **Note:** ***Adjust R72 (RF AGC) to correct for excess noise in the picture or when streaky cross interference occurs due to strong electrical fields.*** 1) Adjust R72 to minimize noise or streaks on the TV monitor. 2) Check for absence of abnormality on all channels.
3	SOUND DET (E/EG)	• EE	• TUNRT • TV broadcast	•CN2-5	• T3 (FM DET)	1) Use a adjustment circuit as shown in Fig. 2-7-3, and connect a distortion meter as shown in Fig. 2-7-3. 2) Adjust T3 for minimum distortion (less than 2.0%).
	 Fig. 2-7-3					**Alternate method:** 1) Receive a colour broadcast. Connect an oscilloscope to CN2-5. 2) Adjust T3 for maximum level at audio sound.

2.8 A2 DEMODULATOR CIRCUIT (E/EG)

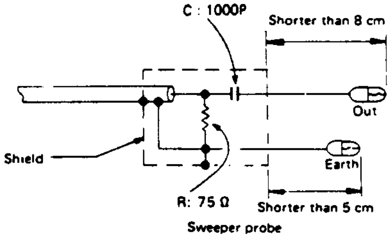
Note: ***Unless otherwise specified, all measurement points and adjustment parts are located on*** $\boxed{1}$ $\boxed{4}$ ***A2 DEMODULATOR board.***

Audio Multiplex TV Signal Generator

Recommanded Specifications

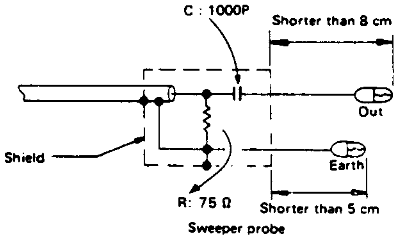
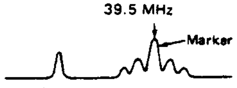
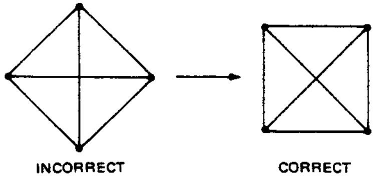
1. Signal Format	Based on CCIR-B
2. Frequency	
Video Carrier FV	38.9 MHz
1st Sound Carrier f_{s1}	33.4 MHz
2nd Sound Carrier f_{s2}	33.1578125 MHz
3. Modulator	
Video	Crosshatch (black on white) V: 50 Hz, H: 15.625 kHz
Audio	Sinewave 1 kHz; CH1 and CH-2 outputs switchable
4. Output	97 dB/μV (open)±2 dB fixed, BNC-R 75 Ω
5. P-S Ratio	S_1 P−13 dB±2 fixed S_2 P−20 dB±2 fixed
6. Modulation	
Video	87.5%±3%
Audio	±30 kHz±2 kHz
7. Stereo Separation	Less than −40 dB
8. Pilot Signal	
Carrier Frequency	54.6875 kHz±5 Hz synchronized type
Stereo	117.5 Hz AM 50%
Dual	274.1 Hz AM 50%

9. Sound Modulation Modes	S_1	S_2
Mono	Mono 1	Mono 2
Stereo	(L+R)/2	R
Dual	Mono 1	Mono 2
10. Functions	S_1	S_2
Mono (M)	100%	100%
Stereo (L, R)	(L+R)/2	R
(L)	L/2	—
(R)	R/2	R
(OFF)	—	—
Mult (S_1, S_2)	100%	100%
(S_1)	100%	0
(S_2)	0	100%
(OFF)	0	0
V. MOD (ON/OFF)		
11. Frequency Accuracy	Within±5×10^{-5}	
12. Spurious	Less than −50 dB	
13. Saw Filter	Self-contained	

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
● Equipment required: 1. Oscilloscope 2. Audio Multiplex TV Signal Generator 3. Sweeper probe (sweep signal supply cable) as showm below.  C : 1000P Shorter than 8 cm Out Shield Earth R: 75 Ω Shorter than 5 cm Sweeper probe Fig. 2-8-1						
1	First audio detector coil (E/EG)	• EE	• BILING • SUB: unmod • MAIN: mod	• IC1 pin 3	• T4 (SYNC TRAP) [0] [8] TUNER/ IF	1) Use a sweeper probe as shown in Fig. 2-8-1 and apply Main audio modulated signal to the front end IF terminal. 2) Connect a distortion meter to IC1 pin 3. 3) Adjust T4 for minimum distortion. **Note:** ***Audio multiplex TV signal generator connection is the same for the following adjustments.***
2	Second audio coil (E/EG)	• EE	• BILING • SUB: mod • MAIN: unmod	• IC1 pin 2	• T1 (BILIN DET)	1) Connect distortion meter to IC1 pin 2. 2) Adjust T1 for minimum distortion.
3	Stereo separation (E/EG)	• EE	• STEREO • R : mod • L : unmod	• IC1 pin 5	• R2 (STEREO SEPA)	1) Set a signal generator to Stereo mode, but adjust only the R channel. 2) Connect an oscilloscope to IC1 pin 5. 3) Adjust R2 for minimum output level.
4	Buzz (E/EG)	• EE	• STEREO • R/L: unmod	• CN1 pin 9	• T2 (DET BUZZ)	1) Connect a noise meter to CN1 pin 9 and an oscilloscope to AC output of the noise meter. 2) Adjust T2 of the IF board for minimum crosshatch noise.
5	Audio output level (E/EG)	• EE	• STEREO • R : mod/unmod • L : unmod/mod	• CN1 pin 9 (L) • CN1 pin 7 (R)	• R21 (L AUDIO LEVEL) • R24 (R AUDIO LEVEL)	1) Set a signal generator for stereo mode. 2) Connect a noise meter to CN1 pin 9. 3) Adjust R21 (L channel) for −18.0 ± 0.5 dBs. 4) Similarly, connect a noise meter to pin 7 of CN1 and adjust R24 for the R channel.

2.9 DEMODULATOR CIRCUIT (EK)

Note: ***Unless otherwise specified, all measurment points and adjustment parts are located on the [1] [4] DEMODULATOR board.***

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
Equipment required: 1. Oscilloscope 2. IF sweep signal generator with suitable markers (PIF, SIF, etc.) 3. Sweeper probe (sweep signal supply cable) as shown below.  C : 1000P Shorter than 8 cm Out Shield Earth R: 75 Ω Shorter than 5 cm Sweeper probe Fig. 2-9-1						
1	VCO (EK)	• EE	• TUNER  VCO and sweep signal (beat) Fig. 2-9-2	• IC1-28	• T1 (VCO)	1) Use sweeper probe as shown in Fig. 2-9-1 and connect the sweep generator output to pin 2 of SAW1. 2) Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope. 3) Connect an oscilloscope to pin 28 of IC1 (VIDEO DET OUT) and adjust T1 to align the waveform with the 39.5 MHz marker as shown in Fig. 2-9-2.
2	Carrier VCXO (EK)	• EE	• TUNER  Fig. 2-9-3	• IC2-19 • IC2-20	• C33 (VCXO)	**• Before the following adjustments:** 1) Connect a cable to ANT IN and terminate TV OUT with 75Ω. 2) Set a TV channel signal generator as follows. Video : 70 dBμ/75Ω, colour bar 87.5% modulation. Audio: 60 dBμ/75Ω, 400 Hz ± 50 kHz deviation or 50 dBμ/75Ω, 400 Hz, 0 dB. 1) Connect one channel of a dual trace oscilloscope to IC2-19 and the other channel to IC2-20. 2) Set the dual trace oscilloscope to X-Y mode, adjust C33 to obtain a square shaped waveform as shown in Fig. 2-9-3.
3	Clock VCO (EK)	• EE	• TUNER	• IC3-29	• T2 (CLOCK)	1) Connect digital voltmeter to IC3-29, adjust T2 for 2.0 ± 0.1 VDC.

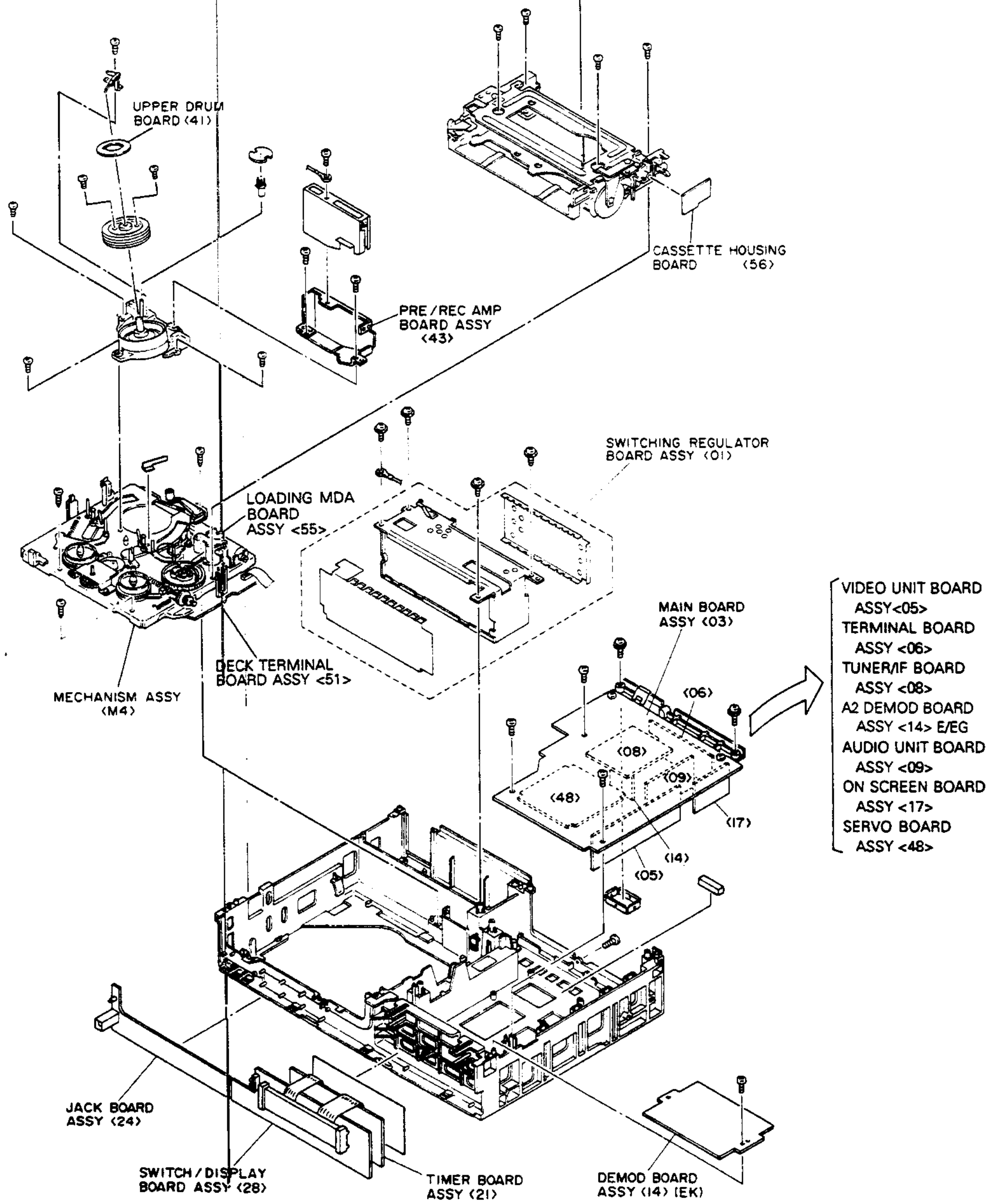
2.10 ON SCREEN CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the 17 ON SCREEN board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Dot clock	• EE	• TUNER	• TP901	• C905 (DOT CLOCK)	1) Connect a frequency counter to TP901. 2) Short IC901-3 to GND and short IC901-30 to IC301-32 (SWD 5V). 3) Adjust C905 for 7.30 ± 0.05 MHz. **Note:** *If incorrectly the above adjustments, slip out the on screen display. For adjustment of above steps (2) to (4), looking for Menu on the monitor-TV and rough adjustment C905 preparation.*
2	Burst clock	• EE	• TUNER	• TP902	• C916 (BURST CLOCK)	1) Connect a frequency counter to TP902. 2) Adjust C916 for 17.73447 ± 0.00030 MHz. **Note:** *If incorrectly the above adjustment, blue back picture is not appear on the monitor-TV. For adjustment of above steps (1) to (2), looking for Menu on the monitor-TV and rough adjustment C916 preparation.*

SECTION 3
CHARTS AND DIAGRAMS

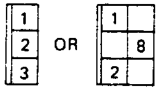
3.1 CIRCUIT BOARD LOCATION


UPPER DRUM BOARD ‹41›
CASSETTE HOUSING BOARD ‹56›
PRE/REC AMP BOARD ASSY ‹43›
SWITCHING REGULATOR BOARD ASSY ‹01›
LOADING MDA BOARD ASSY <55>
MAIN BOARD ASSY ‹03›
VIDEO UNIT BOARD ASSY<05>
TERMINAL BOARD ASSY <06>
TUNER/IF BOARD ASSY <08>
A2 DEMOD BOARD ASSY <14> E/EG
AUDIO UNIT BOARD ASSY <09>
ON SCREEN BOARD ASSY <17>
SERVO BOARD ASSY <48>
‹06›
‹08›
‹09›
‹48›
‹17›
‹14›
‹05›
DECK TERMINAL BOARD ASSY <51>
MECHANISM ASSY ‹M4›
JACK BOARD ASSY ‹24›
SWITCH/DISPLAY BOARD ASSY ‹28›
TIMER BOARD ASSY ‹21›
DEMOD BOARD ASSY ‹14› (EK)

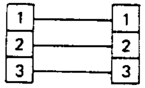
3.2 GENERAL INFORMATION

3.2.1 Connections

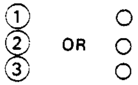
Note:
Unless otherwise specified, only signal input flow is indicated.
Connection arrows indicate only signal outputs.



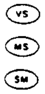
: Connectors



: Board in connectors



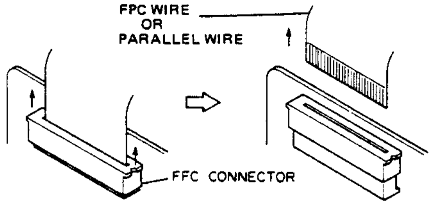
: Direct connections



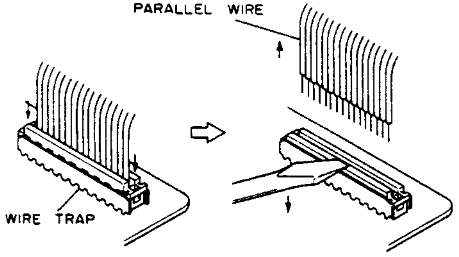
: Connected pattern in the board.
Abbreviations
V : Video M : Mechacon
S : Servo A : Audio
VS : Signal flow from video to servo.

3.2.2 Disconnecting the flatwire

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

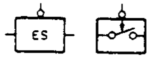


2. Depress the connector structure downward to release the clamp when removing or inserting the flat wire cable, as indicated below.

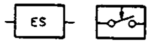


3.2.3 Indications

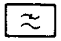
AUX : Active only at high.
$\overline{AUX}$: Active only at low.
$\bar{A}\bar{U}\bar{X}$: Active only at middle.
$\bar{A}U\bar{X}$: Active only at open.



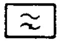
: Active only at low for electronic switch.



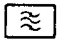
: Active only at high for electronic switch.



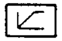
: Low pass filter.



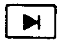
: High pass filter.



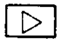
: Band pass filter.



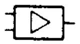
: Limiter.



: Detector



: Amplifier.



: Mixer stage.

3.2.4 Schematic diagram values

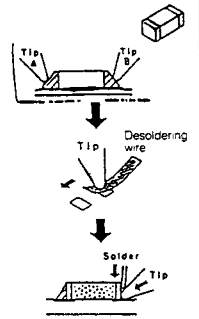
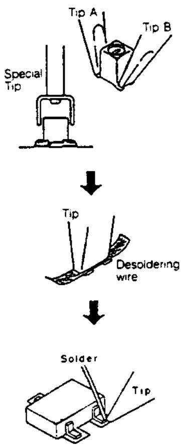
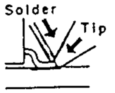
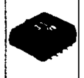
Unless otherwise specified.

1. All resistance values are in ohms, 1/6 W or 1/8 W (refer to parts list).
2. All capacitance values are in μF, (P; PF).
3. All inductance values are in μH, (m; mH).
4. All diodes are 1SS133 or MA165, (refer to parts list).
5. Voltages are DC-measured (reference to ground) with a digital voltmeter during recording (SP mode) and playback (SP mode) with alignment tape. Where voltages differ between recording and playback, the voltage during playback is shown in parenthesis.
6. Waveforms (VIDEO System) are measured (reference to ground) with a color bar during recording (SP mode) and playback (SP mode) with alignment tape.
7. Waveforms (AUDIO System) are measured (reference to ground) with 1 kHz (−8 dBs) during recording and playback with alignment tape (1 kHz).
8. Shaded (   ) parts are critical for safety. Replace only with specified part numbers.

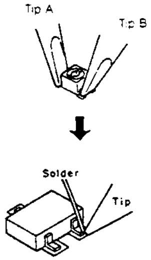
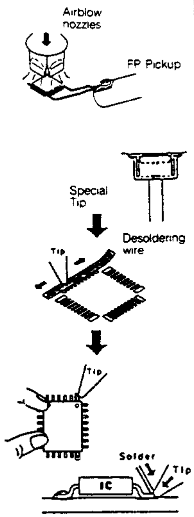
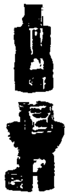
3.2.5 Signal flow in the schematic

➡ Recording signal path
⇨ Playback signal path
➡ REC/PB signal path

3.2.6 Basic knowledge of SMC* parts replacement

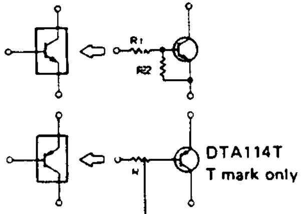
Products	Appear-ance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Thick Film Chip Resistors			• **Use 2 soldering irons** 1. Use thin tip soldering irons. 2. Use soldering tip temperature of about 280°C. 3. Simultaneously heat both ends of the part. 4. While heating, grasp the part with the tips of the soldering irons and remove it. 5. Use desoldering wire to completely remove the old solder from the part location of the board. 6. A clean pattern for installing the new part is very important.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3 mm) solder between the tip and part so that it flows into the part contact. 5. Check work quality with a magnifier.	Thin tip type Small flat-blade tip type 	Some parts can be damaged by sudden heating. Preheat the part at about 100°C for several minutes before installing it. Do not touch the part body with the soldering iron. The thin (0.3 mm) solder for miniature parts does not contain adequate flux. Supplementary flux is thus needed in most cases. Set the position carefully and secure the part. A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
Carbon Film Chip Resistors						
Metal Film Chip Resistors						
Chip Ceramic Capacitors						
Chip Triming Resistors						
Chip Inductors		 Tip A Tip B Special Tip Tip Desoldering wire Solder Tip	• **Special desoldering iron** 1. Select soldering tip according to part size. 2. Bring the tip into contact with the soldered points. 3. When the solder melts, remove the part. 4. Remove the old solder with desoldering wire. • **2 soldering irons** 1. Use small flat-blade tips. 2. Heat both ends of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be mounted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.  5. Check work quality with a magnifier.	Special Soldering tip Small flat-blade tip type Thin tip type 	Use care not to damage plastic components when soldering. Position the part carefully. This will also affect the soldering operation. Use care regarding soldering iron tip and avoid rapidly heating parts. For larger parts, use a slightly higher temperature (about 300°C). Check after installing (cold solder joints, etc.). Use care not to damage the circuit pattern, especially when removing.
Chip Resistor Networks						
Chip Tantalum Capacitors						
Chip Tantalum Electrolytic Capacitors						
Chip Aluminum Electrolytic Capacitors						
Chip Transformers						
Chip Filters						

*SMC: Surface Mounted Component

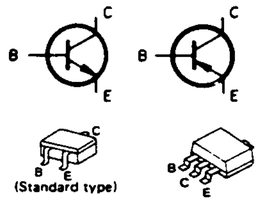
Products	Appear-ance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Chip VRs			• **2 soldering irons** 1. Use small flat-blade tips. 2. Heat the leads of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.	Thin tip type Small flat-blade tip type 	Use care not to damage the part when soldering. Check for solder joints, expecially miniature parts with small leads.
Chip Trimmer Capacitors						
Diodes						
Transistors						
IC (SOP) (Small Outline Package)		 Airblow nozzles FP Pickup Special Tip Desoldering wire Tip Tip Solder Tip IC	• **Special desoldering iron** 1. Select the tip according to the size and shape of the IC. 2. "Tin" the tip with a small amount of solder. 3. Set the tip squarely over the IC leads. 4. When the solder melts, carefully twist the iron. 5. Raise and remove the IC. • **Shaped airblower unit** 1. Select the correct nozzle. 2. Select the temperature and airblow (suggested: temp. 7, airblow 4). 3. Engage the IC removing tool. 4. Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.	1. Use desoldering wire to remove the previous solder. 2. Clean the location with alcohol. 3. Apply flux. 4. Position the IC and solder two pins at opposite sides. 5. Use a sharp tipped soldering iron and carefully solder each pin. (After gaining experience, a thicker tip can be used for better work efficiency.) 6. Remove any solder bridges with desoldering wire. 7. Inspect the work with a magnifier.	Special soldering tips. Airblow nozzles 	Do not reuse removed parts. Use care to avoid solder bridges. Remove any that occurs. Remove the old IC carefully so as not to damage the circuit pattern. Because of the many pins, cleanliness of the pattern is extremely important after removing the IC. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier. It is important to inspect the work with a magnifier. ICs (especially TSOP) are easily damaged by heat. Do not touch directly with the soldering iron.
IC (SSOP) (Shrink Small Outline Package)						
IC (VSOP) (Very Small Outline Package)						
IC (QFP) (Quad Flat Package)						
IC (VQFP) (Very Small Quad Flat Package)						
IC (PLCC) (Plastic Leaded Chip Carrier)						
IC (TSOP) (Thin Small Outline Package)						

3.2.7 Semiconductors

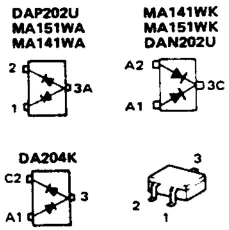
1. Digital transistor



2. Chip transistor



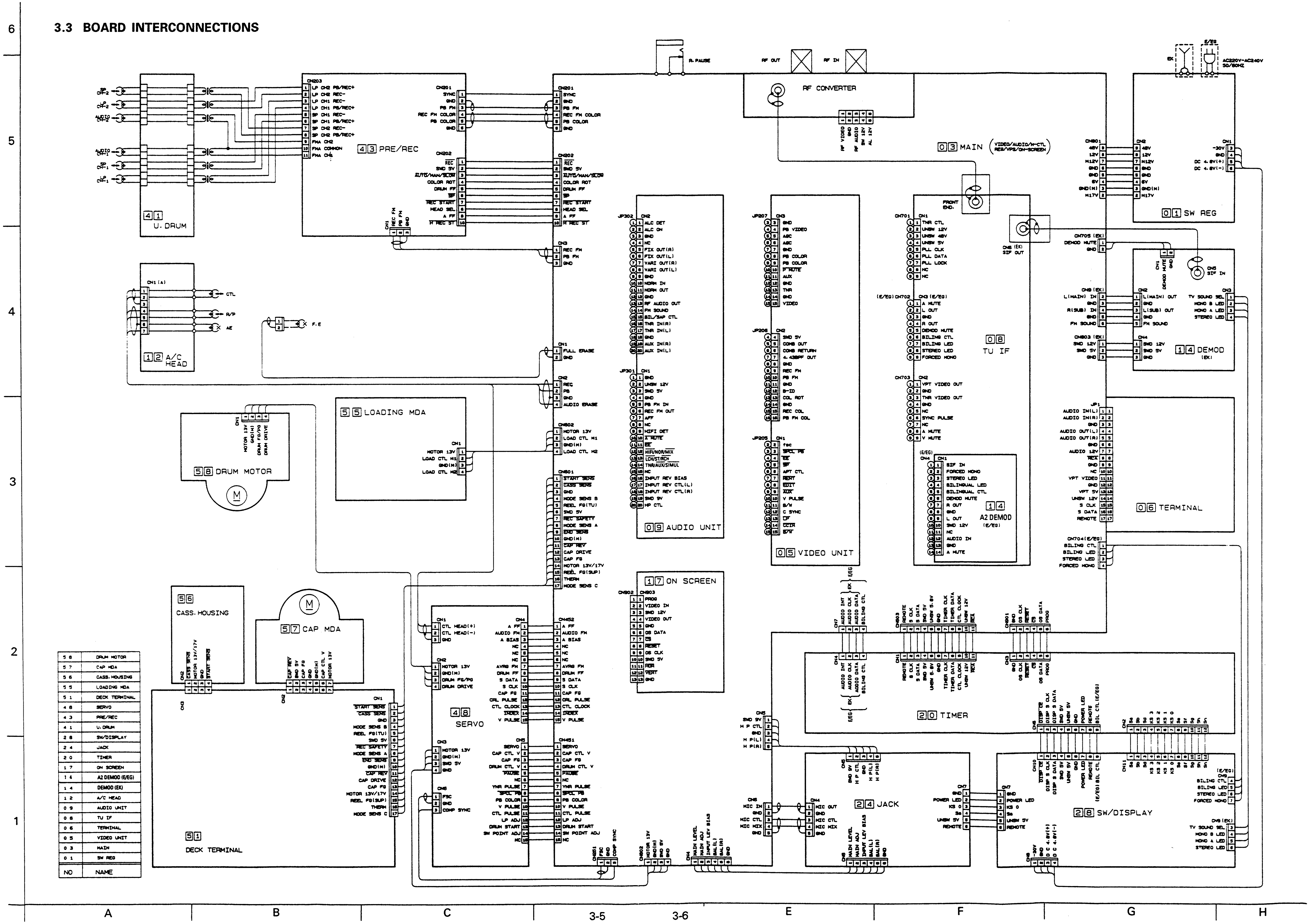
3. Chip diode



Note: The digital transistor includes built in resistors. If features small size and high reliability. Both PNP and NPN types are available.

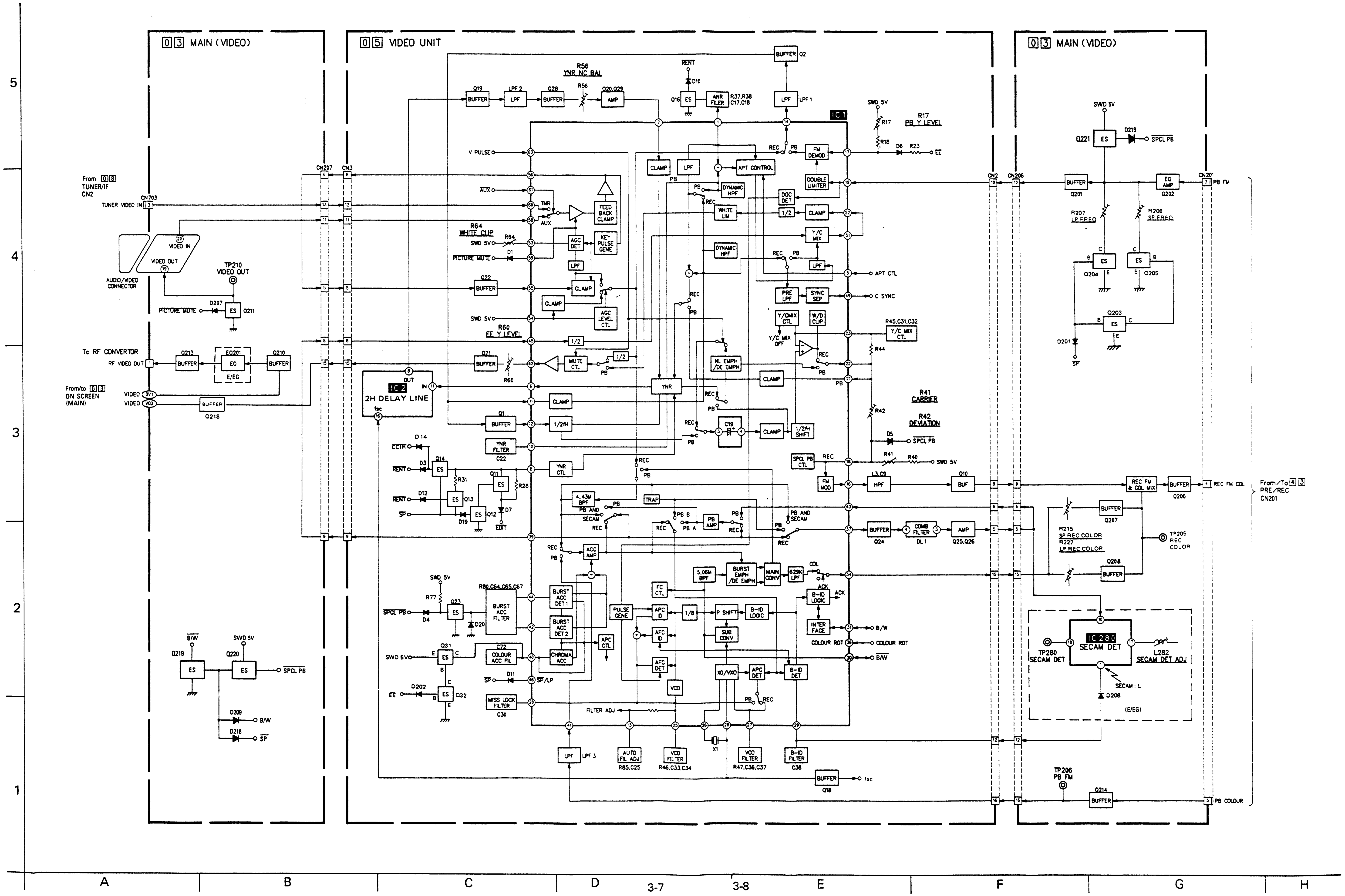
Uses: Inverter, interface, driver circuits.

3.3 BOARD INTERCONNECTIONS

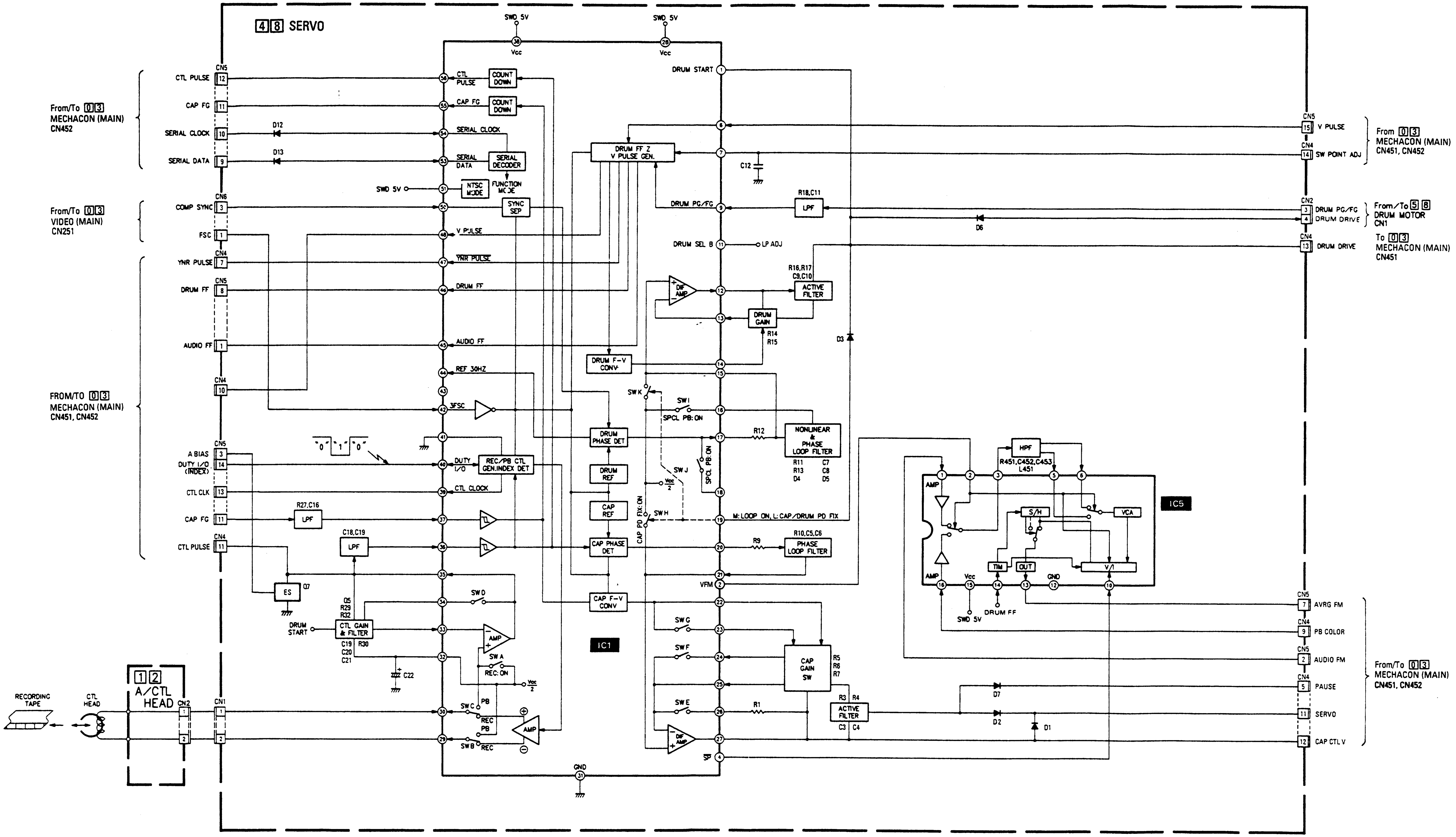

41 U. DRUM
43 PRE/REC
12 A/C HEAD
55 LOADING MDA
58 DRUM MOTOR
56 CASS. HOUSING
57 CAP MDA
51 DECK TERMINAL
48 SERVO
09 AUDIO UNIT
17 ON SCREEN
05 VIDEO UNIT
08 TU IF
14 A2 DEMOD (E/EG)
03 MAIN (VIDEO/AUDIO/H-CTL REG/VPS/ON-SCREEN)
RF CONVERTER
RF OUT
RF IN
R. PAUSE
01 SW REG
AC220V-AC240V 50/60Hz
14 DEMOD (EX)
06 TERMINAL
20 TIMER
24 JACK
28 SW/DISPLAY
FRONT END.
CTL
R/P
AE
F.E
A
B
C
E
F
G
H
1
2
3
4
5
6

NO	NAME
5 8	DRUM MOTOR
5 7	CAP MDA
5 6	CASS. HOUSING
5 5	LOADING MDA
5 1	DECK TERMINAL
4 8	SERVO
4 3	PRE/REC
4 1	U. DRUM
2 8	SW/DISPLAY
2 4	JACK
2 0	TIMER
1 7	ON SCREEN
1 4	A2 DEMOD (E/EG)
1 4	DEMOD (EX)
1 2	A/C HEAD
0 9	AUDIO UNIT
0 8	TU IF
0 6	TERMINAL
0 5	VIDEO UNIT
0 3	MAIN
0 1	SW REG

3.4 VIDEO AND VIDEO UNIT BLOCK DIAGRAMS

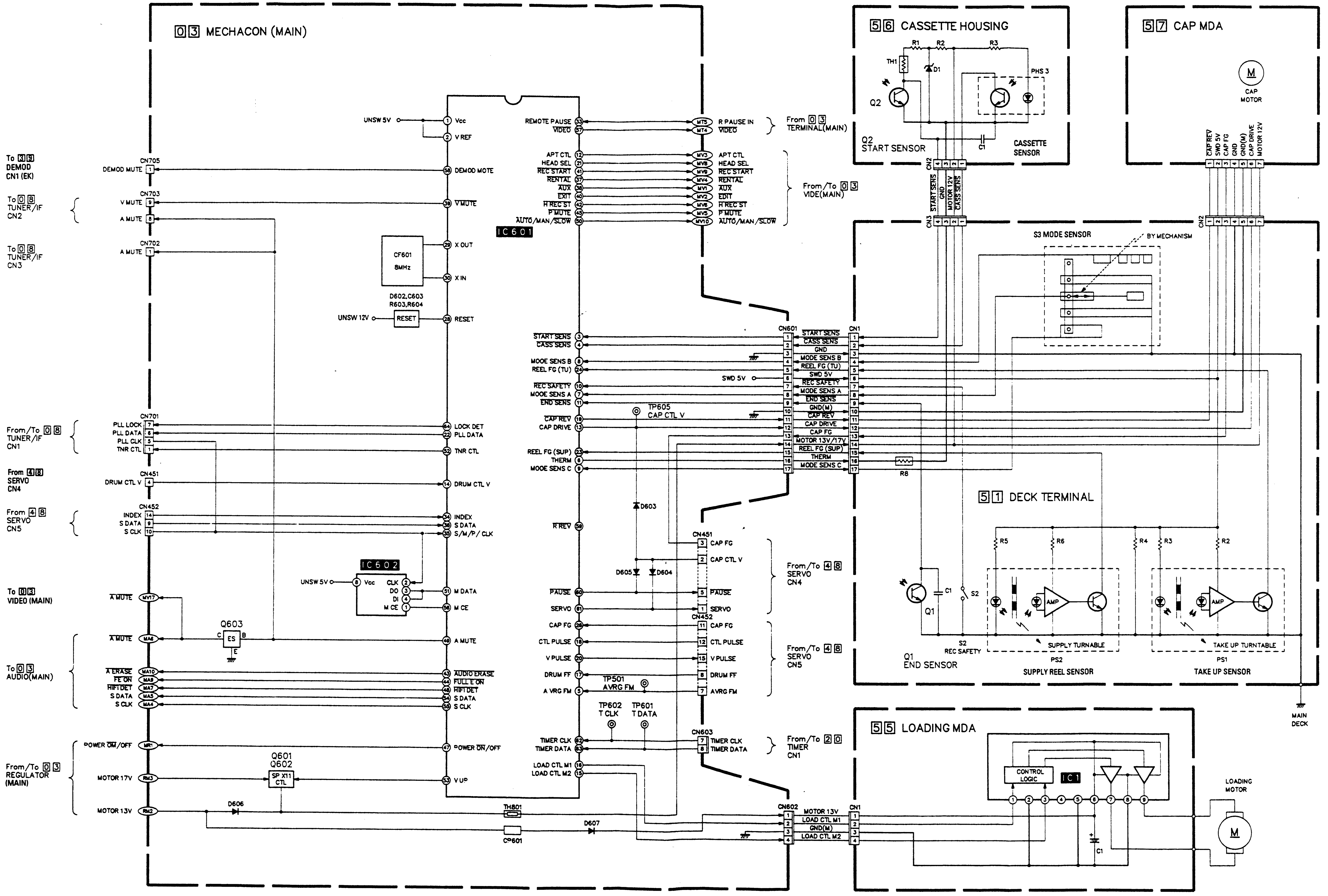

03 MAIN (VIDEO)
05 VIDEO UNIT
03 MAIN (VIDEO)
IC1
IC2 2H DELAY LINE
IC280 SECAM DET
From 08 TUNER/IF CN2
TUNER VIDEO IN
CN703
AUDIO/VIDEO CONNECTOR
VIDEO IN
VIDEO OUT
TP210 VIDEO OUT
PICTURE MUTE
D207
Q211
To RF CONVERTOR
RF VIDEO OUT
Q213 BUFFER
EQ201 EQ E/EG
Q210 BUFFER
From/to 03 ON SCREEN (MAIN)
VIDEO OV1
VIDEO OV2
BUFFER Q218
B/W
SWD 5V
Q219 ES
Q220 ES
SPCL PB
D209 B/W
D218 SP
CN207
CN3
BUFFER Q2
RENT
D10
Q16 ES
ANR FILTER R37,R38 C17,C18
LPF LPF 1
R56 YNR NC BAL
Q19 BUFFER
LPF 2 LPF
Q28 BUFFER
Q20,Q29 AMP
SWD 5V
R17 PB Y LEVEL
R18
D6 R23 EE
V PULSE
AUX
TNR
FEED BACK CLAMP
KEY PULSE GENE
R64 WHITE CLIP
SWD 5V
D1
PICTURE MUTE
AGC DET
LPF
Q22 BUFFER
CLAMP
AGC LEVEL CTL
R60 EE Y LEVEL
Q21 BUFFER
R60
MUTE CTL
1/2
CLAMP
APT CONTROL
FM DEMOD
DOUBLE LIMITER
DYNAMIC HPF
WHITE LIM
DOC DET
1/2
CLAMP
Y/C MIX
DYNAMIC HPF
LPF
APT CTL
PRE LPF
SYNC SEP
C SYNC
Y/CMIX CTL
W/D CLIP
Y/C MIX OFF
R45,C31,C32 Y/C MIX CTL
R44
NL EMPH /DE EMPH
YNR
CLAMP
C19
CLAMP
1/2fH SHIFT
R41 CARRIER
R42 DEVIATION
R42
D5 SPCL PB
Q1 BUFFER
1/2fH
YNR FILTER C22
YNR CTL
D14 CCIR
Q14 ES
D3 RENT
R31
R28
Q11 ES
D12 RENT
Q13 ES
SP
D19
Q12 ES
D7 EDIT
4.43M BPF
PB AND SECAM
TRAP
PB B
PB A
PB AMP
PB AND SECAM
SPCL PB CTL
R41 R40 SWD 5V
FM MOD
L3,C9 HPF
Q10 BUF
BUFFER Q24
COMB FILTER DL1
AMP Q25,Q26
ACC AMP
5.06M BPF
BURST EMPH /DE EMPH
MAIN CONV
629K LPF
COL
ACK
B-ID LOGIC
SWD 5V
R77
Q23 ES
SPCL PB
D4
D20
R80,C64,C65,C67 BURST ACC FILTER
BURST ACC DET 1
BURST ACC DET 2
FC CTL
PULSE GENE
APC ID
AFC ID
1/8
P SHIFT
B-ID LOGIC
SUB CONV
INTER FACE
B/W
COLOUR ROT
B/W
Q31 ES
SWD 5V
C72 COLOUR ACC FIL
CHROMA ACC
APC CTL
AFC DET
VCO
XO/VXO
APC DET
B-ID DET
D11 SP
SP/LP
D202 EE
Q32 ES
MISS LOCK FILTER C30
FILTER ADJ
LPF LPF 3
AUTO FIL ADJ R85,C25
VCO FILTER R46,C33,C34
X1
VCO FILTER R47,C36,C37
B-ID FILTER C38
BUFFER Q18
fsc
CN2
CN206
CN201
SWD 5V
Q221 ES
D219 SPCL PB
BUFFER Q201
EQ AMP Q202
PB FM
R207 LP FREQ
R208 SP FREQ
ES Q204
ES Q205
Q203 ES
D201 SP
REC FM & COL MIX
BUFFER Q206
REC FM COL
From/To 43 PRE/REC CN201
BUFFER Q207
R215 SP REC COLOR
R222 LP REC COLOR
TP205 REC COLOR
Q208 BUFFER
TP280 SECAM DET
L282 SECAM DET ADJ
SECAM : L
D208
(E/EG)
TP206 PB FM
Q214 BUFFER
PB COLOUR
REC
PB
1 2 3 4 5
A B C D E F G H

3.5 SERVO BLOCK DIAGRAM

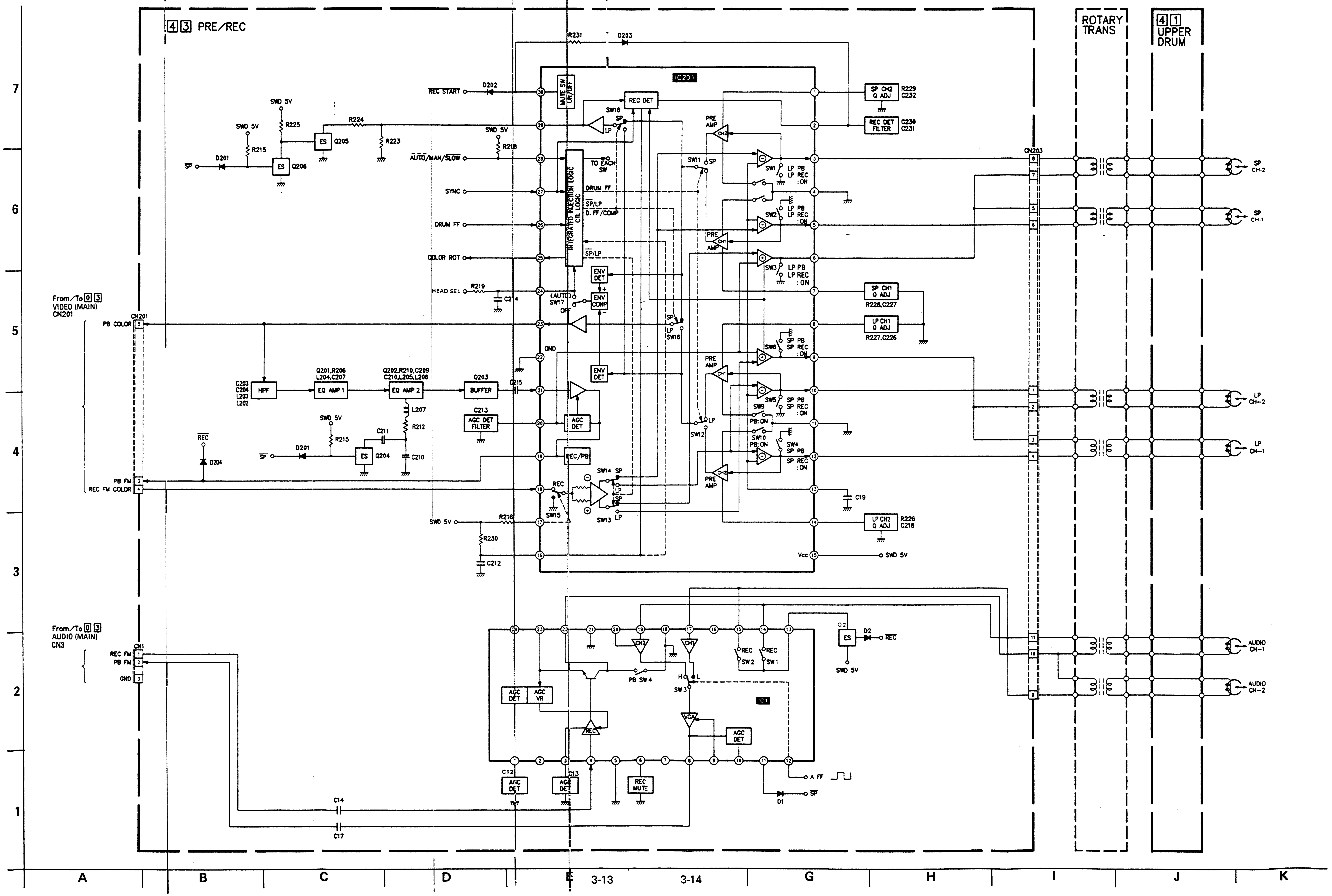


48 SERVO
SWD 5V
Vcc
CN5
CTL PULSE
CAP FG
SERIAL CLOCK
SERIAL DATA
From/To 03 MECHACON (MAIN) CN452
D12
D13
COUNT DOWN
SERIAL DECODER
NTSC MODE
FUNCTION MODE
SYNC SEP
CN6
COMP SYNC
FSC
From/To 03 VIDEO (MAIN) CN251
CN4
YNR PULSE
DRUM FF
AUDIO FF
V PULSE
REF 30HZ
3FSC
FROM/TO 03 MECHACON (MAIN) CN451, CN452
A BIAS
DUTY I/O (INDEX)
CTL CLK
REC/PB CTL GEN. INDEX DET
DUTY I/O
CTL CLOCK
R27,C16
LPF
C18,C19
ES
Q7
Q5 R29 R32
DRUM START
CTL GAIN & FILTER
C19 R30 C20 C21
C22
SW D
AMP
SW A REC: ON
Vcc/2
SW C
PB
REC
SW B
12 A/CTL HEAD
CN2
CN1
RECORDING TAPE
CTL HEAD
GND
IC1
DRUM START
DRUM FF Z V PULSE GEN.
C12
DRUM PG/FG
R18,C11
DRUM SEL B
LP ADJ
DIF AMP
R16,R17 C9,C10
ACTIVE FILTER
DRUM GAIN
R14 R15
D3
DRUM F-V CONV
SW K
SW I
SPCL PB: ON
DRUM PHASE DET
R12
NONLINEAR & PHASE LOOP FILTER
R11 C7 R13 C8 D4 D5
DRUM REF
SW J
CAP REF
SW H
CAP PD FIX: ON
SPCL PB: ON
M: LOOP ON, L: CAP/DRUM PD FIX
CAP PHASE DET
R9
R10,C5,C6
PHASE LOOP FILTER
VFM
CAP F-V CONV
SW G
SW F
SW E
CAP GAIN SW
R5 R6 R7
R1
R3 R4
ACTIVE FILTER
C3 C4
SP
CN5
V PULSE
CN4
SW POINT ADJ
From 03 MECHACON (MAIN) CN451, CN452
CN2
DRUM PG/FG
DRUM DRIVE
From/To 58 DRUM MOTOR CN1
D6
DRUM DRIVE
To 03 MECHACON (MAIN) CN451
HPF
R451,C452,C453 L451
AMP
S/H
VCA
IC5
TIM
OUT
V/I
Vcc
GND
SWD 5V
DRUM FF
AVRG FM
PB COLOR
AUDIO FM
PAUSE
SERVO
CAP CTL V
D7
D2
D1
From/To 03 MECHACON (MAIN) CN451, CN452

3.6 SYSTEM CTL BLOCK DIAGRAM

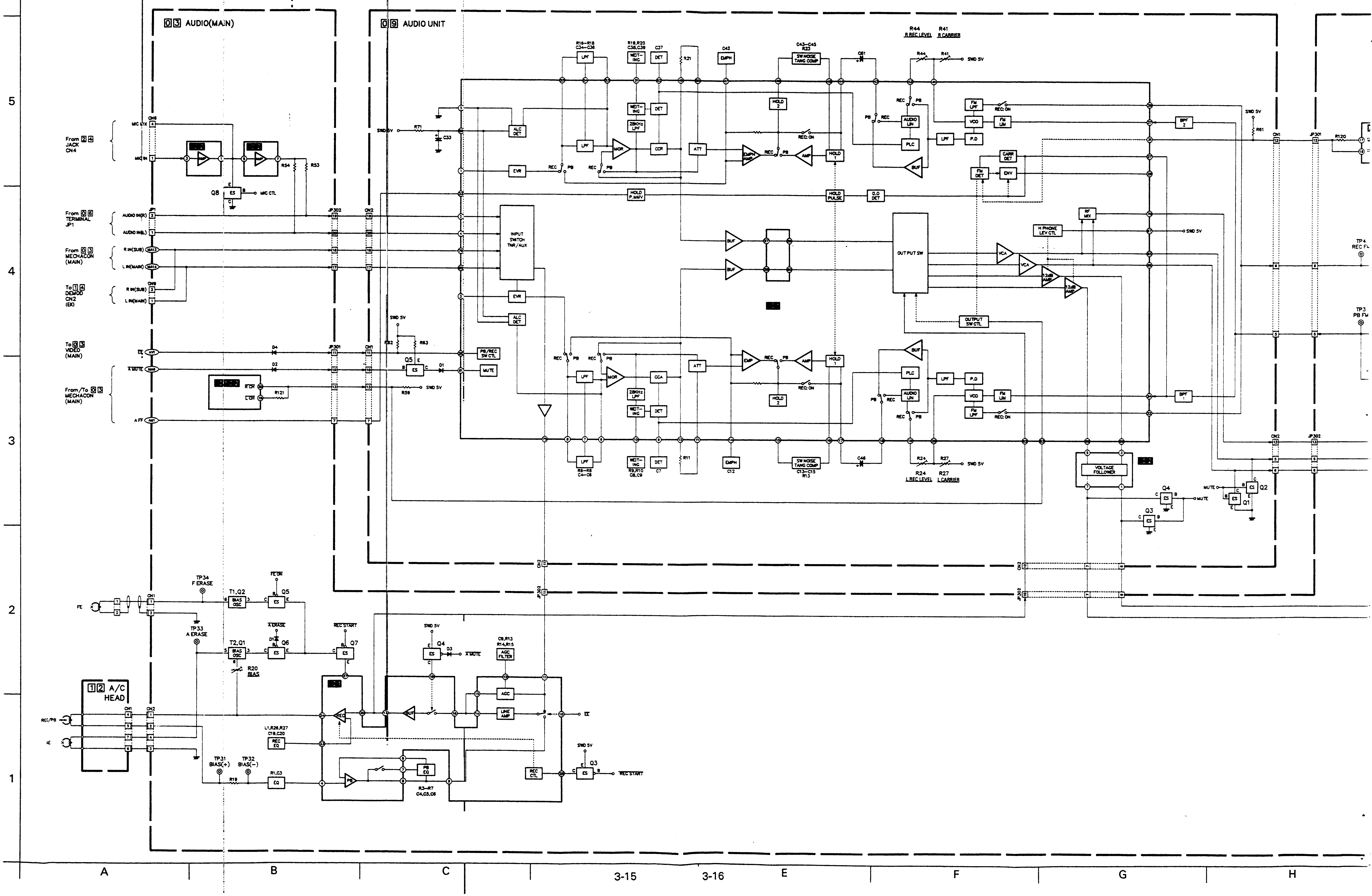

03 MECHACON (MAIN)
IC601
IC602
Vcc
V REF
UNSW 5V
REMOTE PAUSE
VIDEO
APT CTL
HEAD SEL
REC START
RENTAL
AUX
EXIT
H REC ST
P MUTE
AUTO/MAN/SLOW
R PAUSE IN
From 03 TERMINAL(MAIN)
From/To 03 VIDE(MAIN)
To 33 DEMOD CN1 (EK)
CN705
DEMOD MUTE
DEMOD MOTE
To 08 TUNER/IF CN2
CN703
V MUTE
A MUTE
To 08 TUNER/IF CN3
CN702
CF601 8MHz
X OUT
X IN
D602,C603 R603,R604
UNSW 12V
RESET
START SENS
CASS SENS
MODE SENS B
REEL FG (TU)
REC SAFETY
MODE SENS A
END SENS
CAP REV
CAP DRIVE
REEL FG (SUP)
THERM
MODE SENS C
TP605 CAP CTL V
SWD 5V
CN601
GND
GND(M)
CAP FG
MOTOR 13V/17V
From/To 08 TUNER/IF CN1
CN701
PLL LOCK
PLL DATA
PLL CLK
TNR CTL
LOCK DET
From 48 SERVO CN4
CN451
DRUM CTL V
From 48 SERVO CN5
CN452
INDEX
S DATA
S CLK
S/M/P/CLK
R REV
D603
D605
D604
CAP CTL V
PAUSE
SERVO
From/To 48 SERVO CN4
To 03 VIDEO (MAIN)
A MUTE
CLK
DO
DI
M CE
M DATA
Q603
ES
CAP FG
CTL PULSE
V PULSE
DRUM FF
A VRG FM
AVRG FM
TP501 AVRG FM
From/To 48 SERVO CN5
To 03 AUDIO(MAIN)
A ERASE
FE ON
HIFI DET
AUDIO ERASE
FULL E ON
TP602 T CLK
TP601 T DATA
TIMER CLK
TIMER DATA
CN603
From/To 20 TIMER CN1
From/To 03 REGULATOR (MAIN)
POWER ON/OFF
MOTOR 17V
MOTOR 13V
Q601 Q602
SP X11 CTL
V UP
D606
TH801
CP601
D607
LOAD CTL M1
LOAD CTL M2
CN602
CN1
56 CASSETTE HOUSING
R1
R2
R3
TH1
D1
PHS 3
Q2
C1
Q2 START SENSOR
CASSETTE SENSOR
CN2
CN3
START SENS
GND
MOTOR 12V
CASS SENS
57 CAP MDA
M
CAP MOTOR
CAP REV
SWD 5V
CAP FG
GND
GND(M)
CAP DRIVE
MOTOR 12V
S3 MODE SENSOR
BY MECHANISM
R8
51 DECK TERMINAL
R5
R6
R4
R3
R2
Q1
C1
S2
AMP
S2 REC SAFETY
SUPPLY TURNABLE
TAKE UP TURNTABLE
Q1 END SENSOR
PS2 SUPPLY REEL SENSOR
PS1 TAKE UP SENSOR
MAIN DECK
55 LOADING MDA
CONTROL LOGIC
IC1
LOADING MOTOR
M

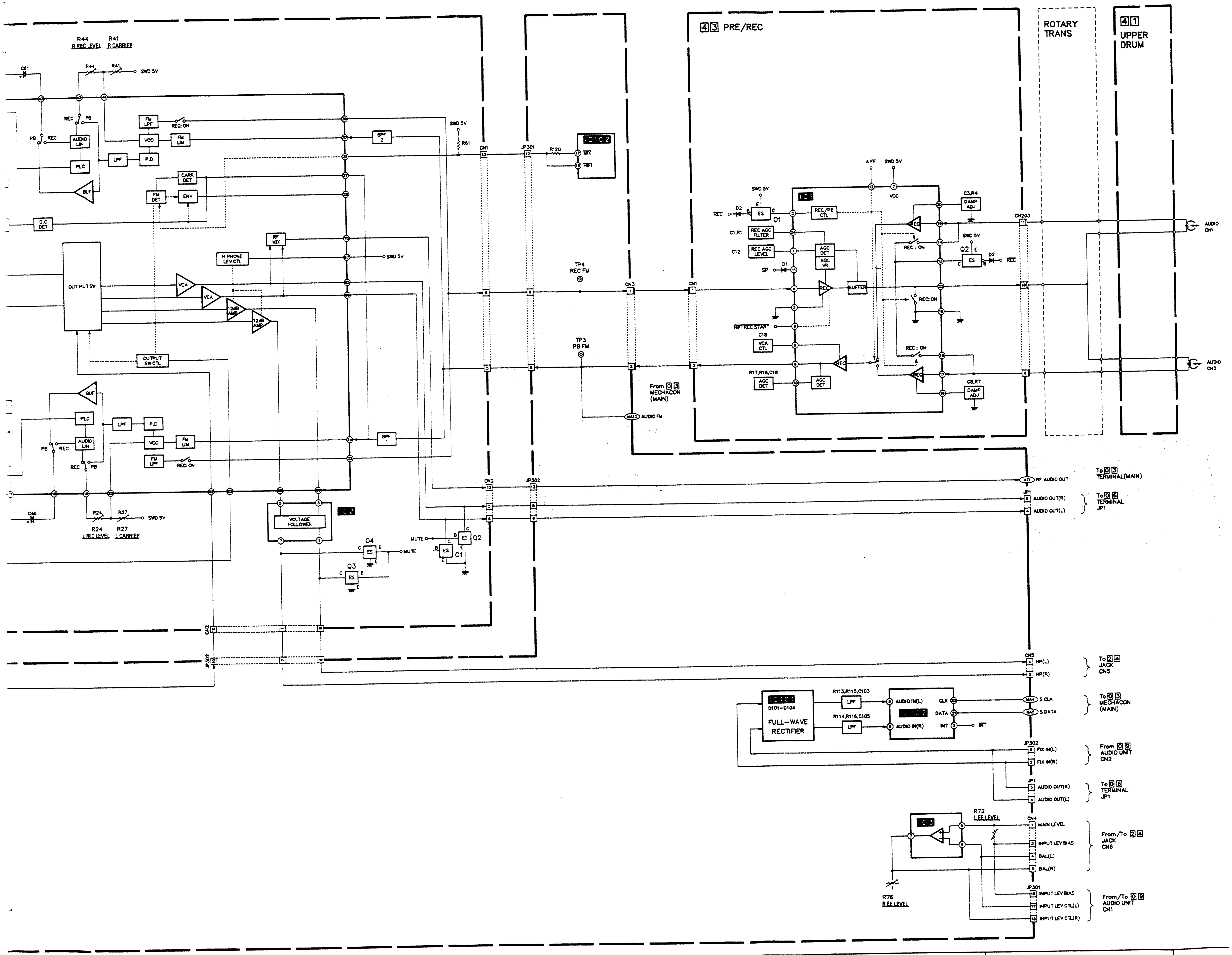
3.7 PRE/REC BLOCK DIAGRAM



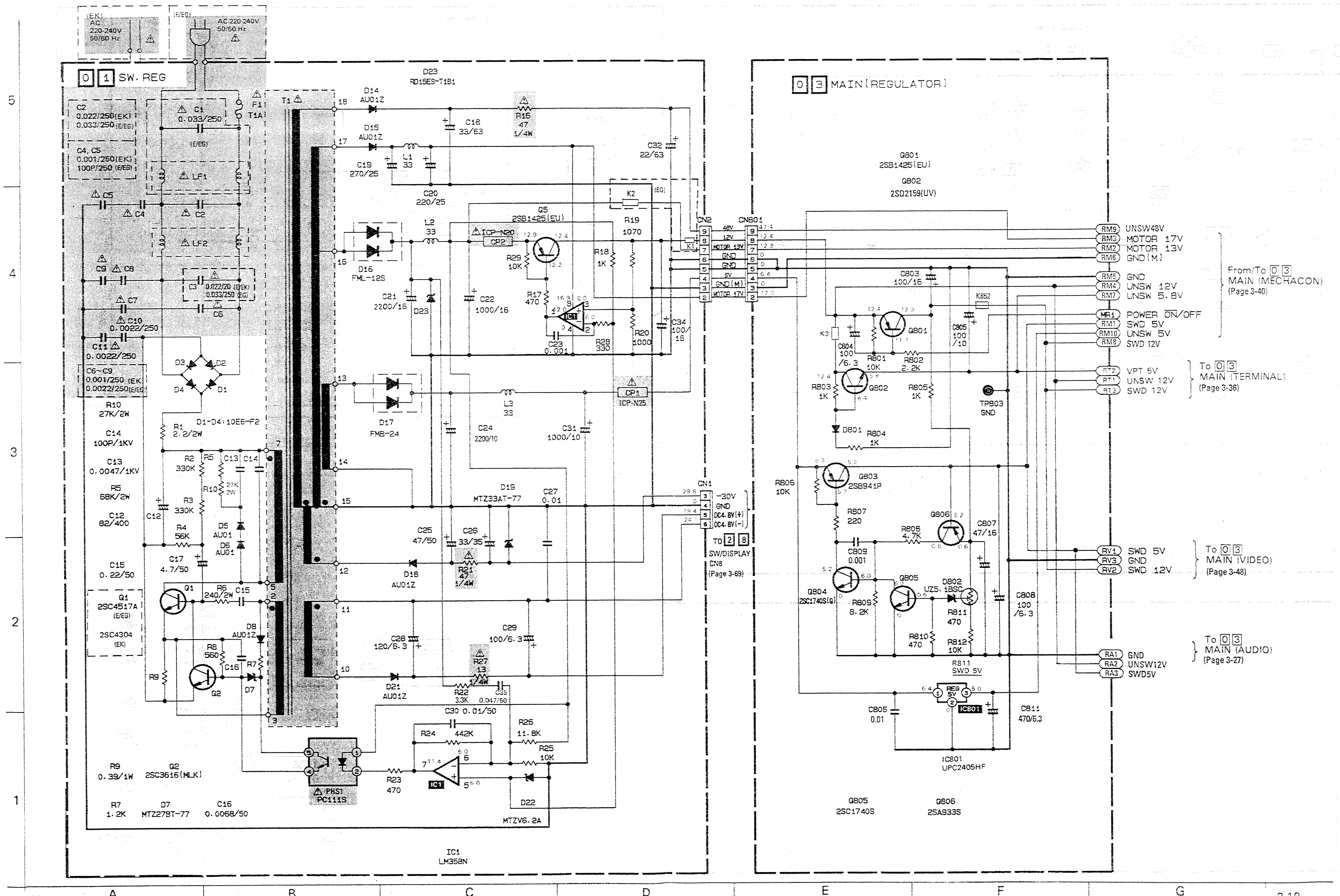
4 3 PRE/REC
ROTARY TRANS
4 1 UPPER DRUM
IC201
REC START
D202
MUTE SW ON/OFF
REC DET
R231
D203
SW18
SP
LP
SWD 5V
R225
R224
R223
Q205
ES
R215
D201
SP
ES
Q206
R218
AUTO/MAN/SLOW
SYNC
DRUM FF
COLOR ROT
HEAD SEL
R219
C214
INTEGRATED INJECTION LOGIC CTL LOGIC
TO EACH SW
DRUM FF
SP/LP
D. FF/COMP
SP/LP
ENV DET
ENV COMP
(AUTO) SW17 OFF
SW16
GND
SW11
SW12
SW1
SW2
SW3
SW4
SW5
SW6
SW9
SW10
PB:ON
LP PB LP REC :ON
SP PB SP REC :ON
PRE AMP
CH1
CH2
SP CH2 Q ADJ
R229 C232
REC DET FILTER
C230 C231
SP CH1 Q ADJ
R228,C227
LP CH1 Q ADJ
R227,C226
LP CH2 Q ADJ
R226 C218
C19
Vcc
SWD 5V
CN203
SP CH-2
SP CH-1
LP CH-2
LP CH-1
AUDIO CH-1
AUDIO CH-2
From/To 0 3 VIDEO (MAIN) CN201
CN201
PB COLOR
PB FM
REC FM COLOR
C203 C204 L203 L202
HPF
Q201,R206 L204,C207
EQ AMP 1
Q202,R210,C209 C210,L205,L206
EQ AMP 2
L207
R212
Q203
BUFFER
C215
C213
AGC DET FILTER
AGC DET
REC/PB
SWD 5V
R215
C211
C210
D201
Q204
REC
D204
SW14
SW15
SW13
REC
R216
R230
C212
From/To 0 3 AUDIO (MAIN) CN3
CN1
REC FM
PB FM
GND
AGC DET
AGC VR
REC
PB SW 4
SW 3
H
L
VCA
AGC DET
IC1
REC SW 2
REC SW 1
Q2
ES
D2
REC
SWD 5V
A FF
D1
SP
C12
AGC DET
C13
AGC DET
REC MUTE
C14
C17
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7

3.8 AUDIO AND AUDIO UNIT BLOCK DIAGRAMS

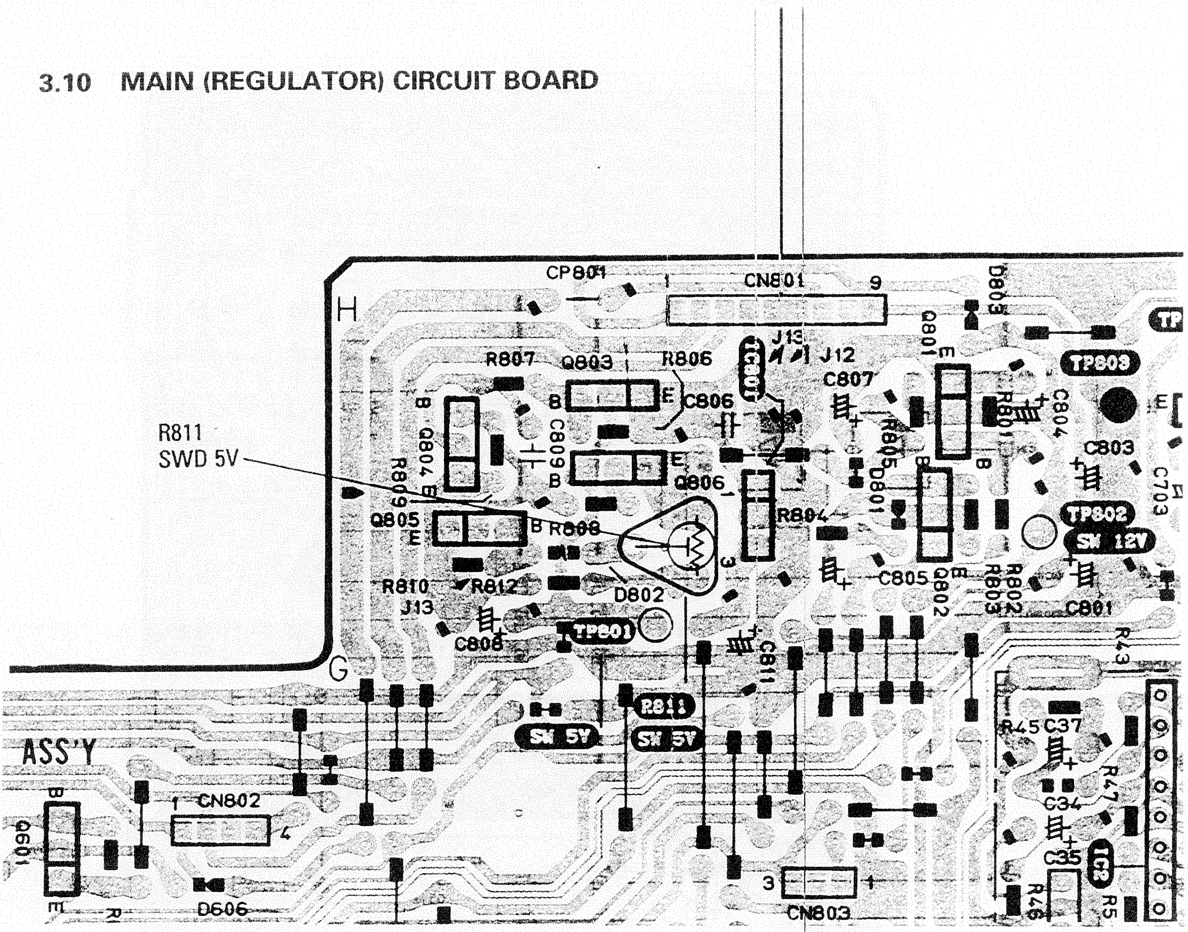

03 AUDIO(MAIN)
09 AUDIO UNIT
From 24 JACK CN4
MIC L/TX
MIC IN
Q8
MIC CTL
R54
R53
From 06 TERMINAL JP1
AUDIO IN(R)
AUDIO IN(L)
From 03 MECHACON (MAIN)
R IN(SUB)
L IN(MAIN)
To 14 DEMOD CN2 (EK)
To 03 VIDEO (MAIN)
A MUTE
From/To 03 MECHACON (MAIN)
R CH
L CH
R121
A FF
JP302
CN2
JP301
CN1
D4
D2
SWD 5V
R71
C33
R82
R83
Q5
D1
R59
ALC DET
EVR
INPUT SWITCH TNR/AUX
PB/REC SW CTL
MUTE
HOLD P.MMV
R16–R18 C34–C36
R19,R20 C38,C39
C37
R21
C42
C43–C45 R23
C61
R44 R REC LEVEL
R41 R CARRIER
LPF
WDT-ING
DET
28KHz LPF
MOR
CCR
CCA
ATT
EMPH AMP
EMP
AMP
HOLD 1
HOLD 2
HOLD PULSE
D.O DET
SW NOISE TANG COMP
AUDIO LIM
PLC
BUF
FM LPF
VCO
FM LIM
P.D
CARR DET
FM DET
ENV
BPF 2
BPF 1
R61
R120
RF MIX
H PHONE LEV CTL
OUT PUT SW
OUTPUT SW CTL
VCA
12dB AMP
REC ON
REC
PB
R6–R8 C4–C6
R9,R10 C8,C9
C7
R11
EMPH
C12
C13–C15 R13
C46
R24 L REC LEVEL
R27 L CARRIER
VOLTAGE FOLLOWER
Q4
Q3
Q2
Q1
MUTE
TP4 REC F
TP3 PB F
TP34 F ERASE
T1,Q2
BIAS OSC
FE ON
FE
TP33 A ERASE
T2,Q1
A ERASE
D1
Q6
REC START
Q7
R20 BIAS
12 A/C HEAD
REC/PB
AE
L1,R26,R27 C19,C20
REC EQ
TP31 BIAS(+)
TP32 BIAS(−)
R19
R1,C3
EQ
PB
PB EQ
R3–R7 C4,C5,C6
Q4
D3
A MUTE
C9,R13 R14,R15
AGC FILTER
AGC
LINE AMP
REC CTL
Q3
A


R44
R REC LEVEL
R41
R CARRIER
C61
SWD 5V
REC
PB
AUDIO LIN
PLC
BUF
FM LPF
REC: ON
VCO
FM LIM
LPF
P.D
BPF 2
CARR DET
FM DET
ENV
D.O DET
RF MIX
H PHONE LEV CTL
OUTPUT SW
VCA
12dB AMP
OUTPUT SW CTL
BPF 1
R24
R27
L REC LEVEL
L CARRIER
C46
VOLTAGE FOLLOWER
IC2
Q4
Q3
Q1
Q2
ES
MUTE
R61
CN1
JP301
R120
IC102
MIX
RIFT
TP4
REC FM
TP3
PB FM
CN3
CN2
JP302
From 03 MECHACON (MAIN)
MA12 AUDIO FM
43 PRE/REC
IC1
A FF
VCC
REC/PB CTL
REC AGC FILTER
REC AGC LEVEL
C1,R1
C12
D1
D2
SP
AGC DET
AGC VR
BUFFER
RF/REC START
C18
VCA CTL
R17,R18,C18
C3,R4
DAMP ADJ
C8,R7
REC: ON
CN203
ROTARY TRANS
41 UPPER DRUM
AUDIO CH1
AUDIO CH2
AT1 RF AUDIO OUT
To 03 TERMINAL(MAIN)
JP1
AUDIO OUT(R)
AUDIO OUT(L)
To 06 TERMINAL JP1
CN5
HP(L)
HP(R)
To 24 JACK CN5
IC101
D101–D104
FULL–WAVE RECTIFIER
R113,R115,C103
R114,R116,C105
AUDIO IN(L)
AUDIO IN(R)
CLK
DATA
INT
MA4 S CLK
MA5 S DATA
To 03 MECHACON (MAIN)
FIX IN(L)
FIX IN(R)
From 09 AUDIO UNIT CN2
IC3
R72
L EE LEVEL
R76
R EE LEVEL
CN4
MAIN LEVEL
INPUT LEV BIAS
BAL(L)
BAL(R)
From/To 24 JACK CN6
INPUT LEV CTL(L)
INPUT LEV CTL(R)
From/To 09 AUDIO UNIT CN1

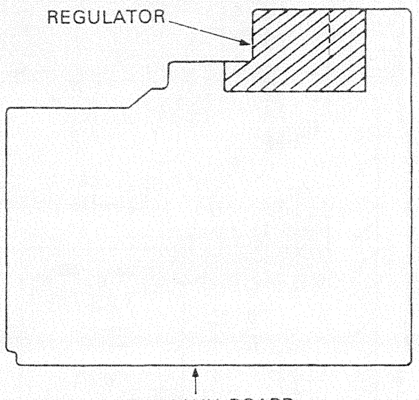
3.9 SWITCHING REGULATOR AND MAIN (REGULATOR) SCHEMATIC DIAGRAMS


(EK) AC 220-240V 50/60 Hz
(E/EG) AC 220-240V 50/60 Hz
01 SW. REG
03 MAIN (REGULATOR)
C2 0.022/250 (EK) 0.033/250 (E/EG)
C4, C5 0.001/250 (EK) 100P/250 (E/EG)
C1 0.033/250
F1 T1A
LF1
LF2
C3 0.022/20 (EK) 0.033/250 (EG)
C6~C9 0.001/250 (EK) 0.0022/250 (E/EG)
C10 0.0022/250
C11 0.0022/250
R10 27K/2W
C14 100P/1KV
C13 0.0047/1KV
R5 68K/2W
C12 82/400
C15 0.22/50
Q1 2SC4517A (E/EG) 2SC4304 (EK)
R9 0.39/1W
Q2 2SC3616 (MLK)
R7 1.2K
D7 MTZ27BT-77
C16 0.0068/50
D1-D4: 10E6-F2
R1 2.2/2W
R2 330K
R3 330K
R4 56K
C17 4.7/50
R6 240/2W
D5 AU01
D6 AU01
D8 AU01Z
R8 560
T1
D23 RD15ES-T1B1
D14 AU01Z
D15 AU01Z
L1 33
C18 33/63
C19 270/25
C20 220/25
R16 47 1/4W
C32 22/63
L2 33
D16 FML-12S
C21 2200/16
C22 1000/16
ICP-N20 CP2
Q5 2SB1425(EU)
R29 10K
R17 470
IC1
C23 0.001
R28 330
R18 1K
R19 1070
R20 1000
C34 100/16
K1
K2 (EG)
D17 FMB-24
L3 33
C24 2200/10
C31 1000/10
CP1 ICP-N25
D19 MTZ33AT-77
C27 0.01
C25 47/50
C26 33/35
D18 AU01Z
R21 47 1/4W
C28 120/6.3
C29 100/6.3
R27 13 1/4W
D21 AU01Z
R22 3.3K
C35 0.047/50
C30 0.01/50
R24 442K
R25 11.8K
R25 10K
R23 470
PHS1 PC111S
D22 MTZV6.2A
IC1 LM358N
CN2
CN801
48V
12V
MOTOR 13V
GND
5V
GND(M)
MOTOR 17V
CN1
-30V
GND
DC4.8V(+)
DC4.8V(-)
To 28 SW/DISPLAY CN8 (Page 3-69)
Q801 2SB1425(EU)
Q802 2SD2159(UV)
C803 100/16
K852
K3
C804 100/6.3
R801 10K
R802 2.2K
C805 100/10
R803 1K
R805 1K
TP803 GND
D801
R804 1K
R806 10K
Q803 2SB941P
R807 220
Q806
C807 47/16
R808 4.7K
C809 0.001
Q804 2SC1740S(G)
Q805
D802 UZ5.1BSC
R809 8.2K
R811 470
R810 470
R812 10K
C808 100/6.3
R811 SWD 5V
C805 0.01
IC801 UPC2405HF
REG 5V
C811 470/6.3
Q805 2SC1740S
Q806 2SA933S
RM9 UNSW48V
RM3 MOTOR 17V
RM2 MOTOR 13V
RM6 GND(M)
RM5 GND
RM4 UNSW 12V
RM7 UNSW 5.8V
MR1 POWER ON/OFF
RM1 SWD 5V
RM10 UNSW 5V
RM8 SWD 12V
From/To 03 MAIN (MECHACON) (Page 3-40)
RT2 VPT 5V
RT1 UNSW 12V
RT3 SWD 12V
To 03 MAIN (TERMINAL) (Page 3-36)
RV1 SWD 5V
RV3 GND
RV2 SWD 12V
To 03 MAIN (VIDEO) (Page 3-48)
RA1 GND
RA2 UNSW12V
RA3 SWD5V
To 03 MAIN (AUDIO) (Page 3-27)
5
4
3
2
1
A
B
C
D
E
F
G

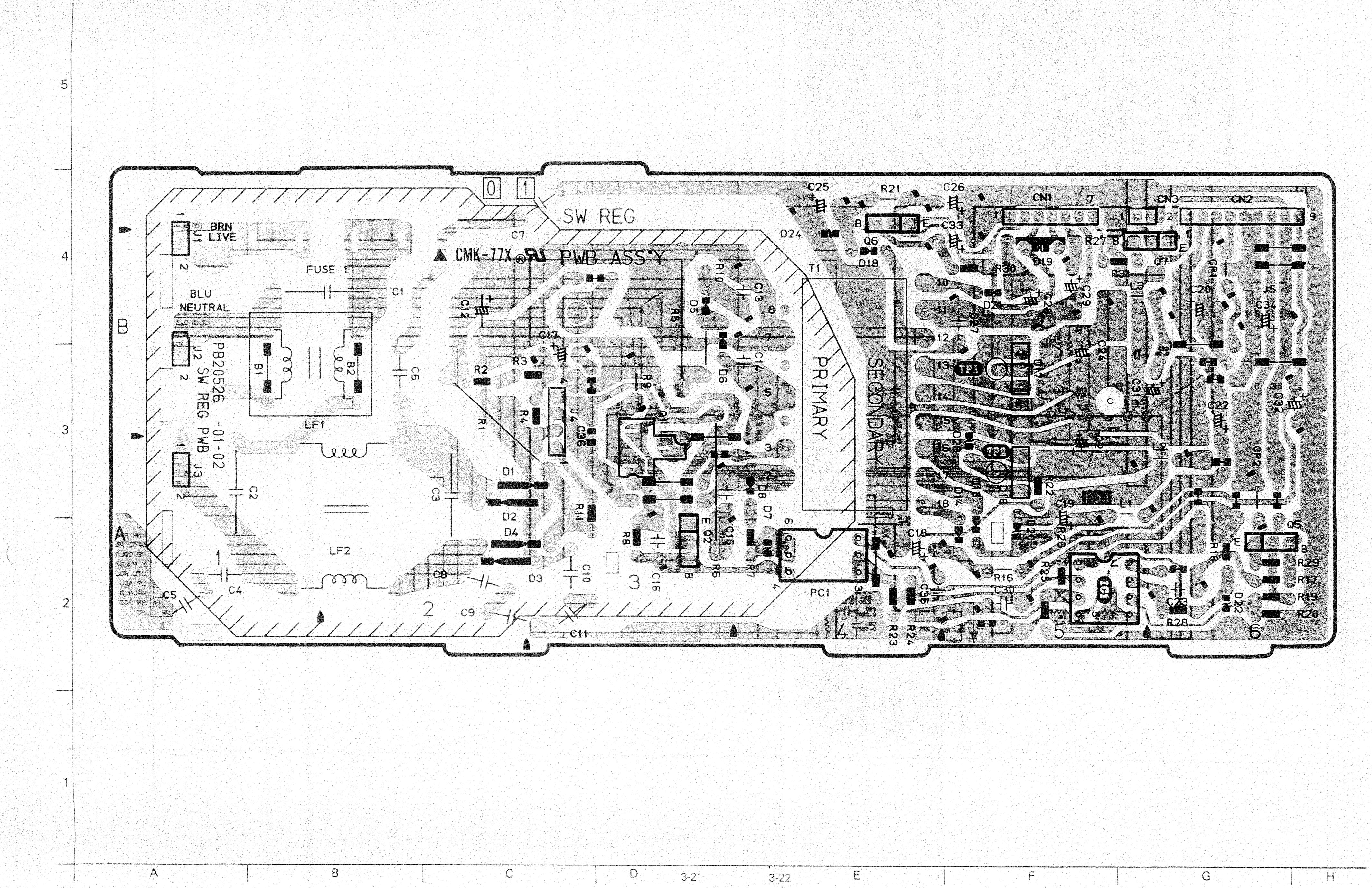
3.10 MAIN (REGULATOR) CIRCUIT BOARD


R811
SWD 5V
CP801
CN801
9
H
G
D803
Q801
TP
TP803
J13
IC801
J12
R807
Q803
R806
C807
C806
R805
R801
C804
B
E
Q804
C809
R809
Q806
D801
C803
C703
Q805
R808
R804
TP802
SW 12V
R810
R812
D802
C805
Q802
R803
R802
C801
J13
C808
TP801
C811
R43
ASS'Y
R811
SW 5V
SW 5V
R45
C37
Q601
CN802
1
4
R47
C34
C35
IC2
3
1
CN803
R46
R5
D606

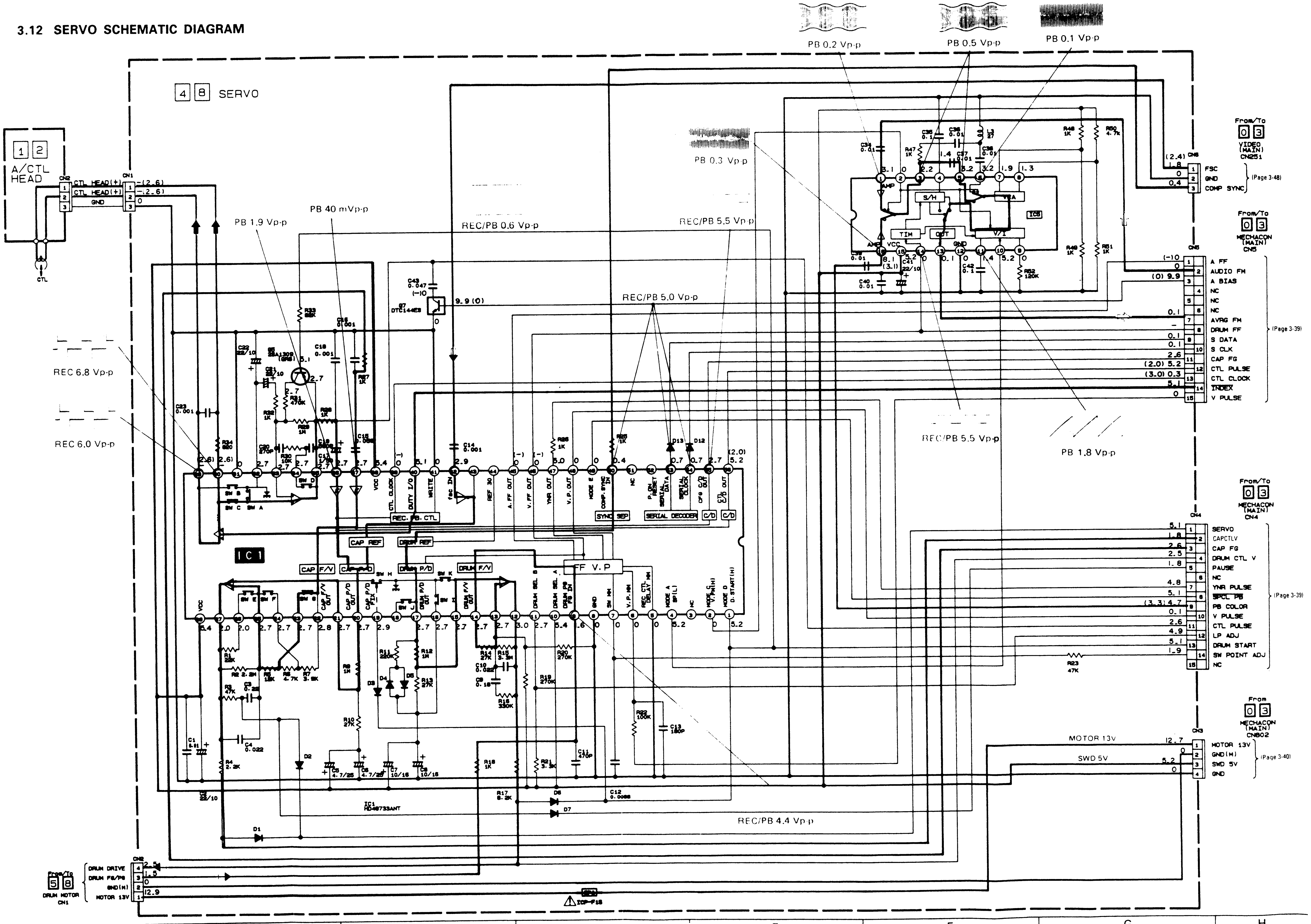
- MAIN board assembly is located in page 45, 46.


REGULATOR
MAIN BOARD

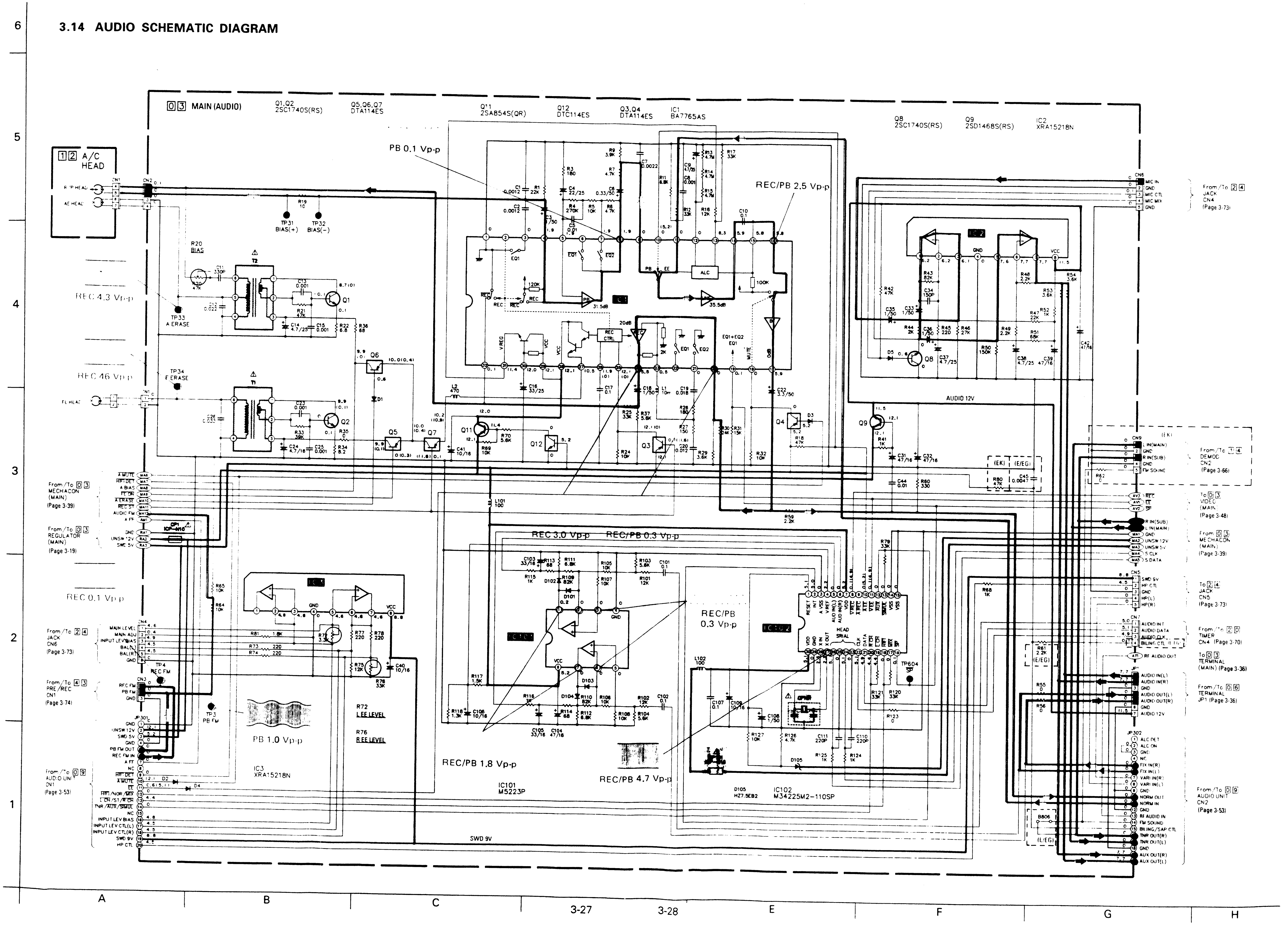
3.11 SWITCHING REGULATOR CIRCUIT BOARD


SW REG
CMK-77X PWB ASS'Y
PB20526 -01-02
J2 SW REG PWB
0
1
J1
BRN
LIVE
BLU
NEUTRAL
FUSE
C1
B1
B2
LF1
LF2
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C22
C23
C24
C25
C26
C29
C30
C31
C32
C33
C34
C35
C36
J3
J4
J5
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
R31
D1
D2
D3
D4
D5
D6
D7
D8
D18
D19
D20
D21
D22
D24
Q2
Q5
Q6
Q7
E
B
T1
PRIMARY
SECONDARY
PC1
L1
L3
CN1
CN2
CN3
IC1
1
2
3
4
5
6
7
9
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
3-21
3-22

3.12 SERVO SCHEMATIC DIAGRAM

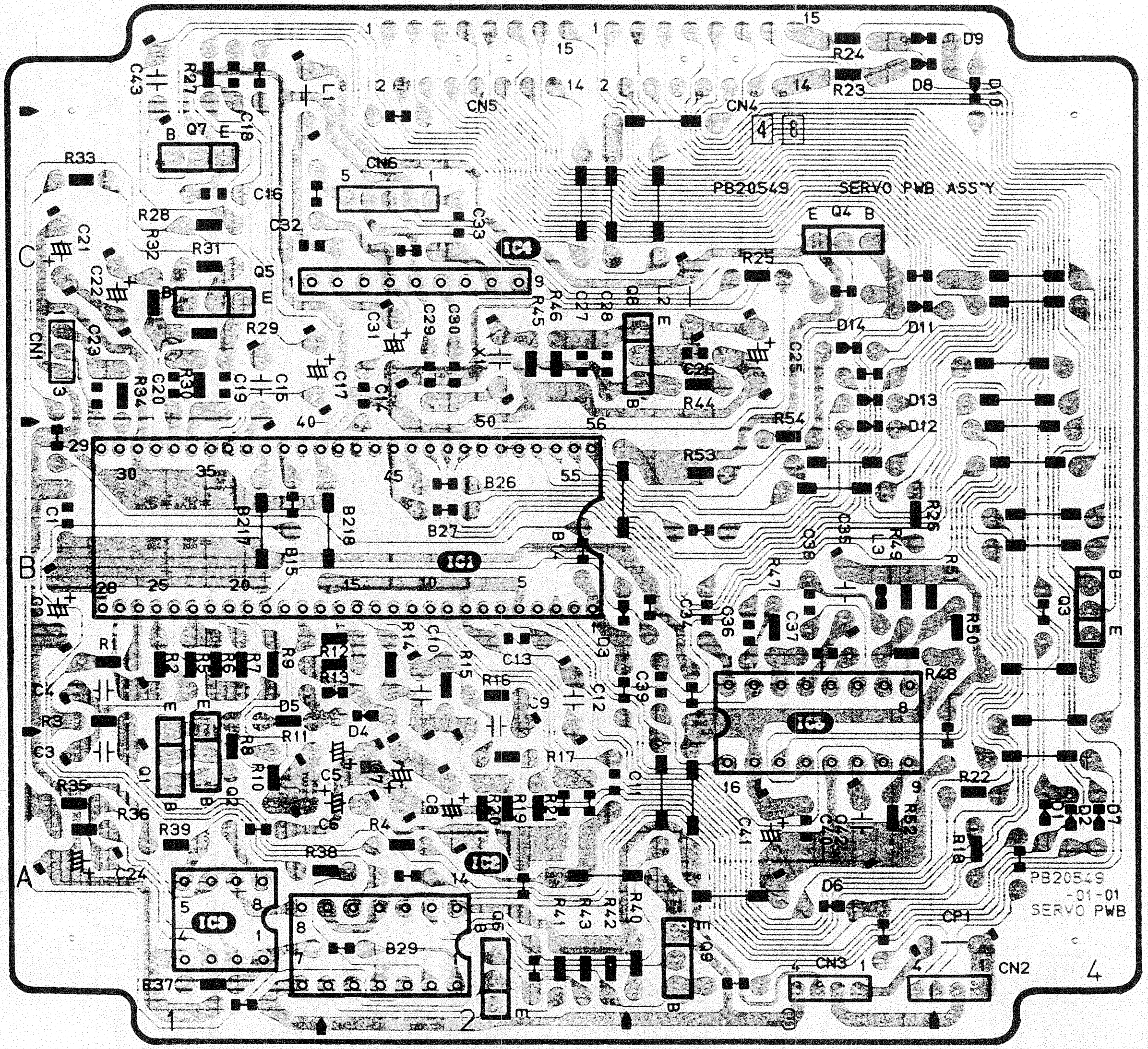

4 8 SERVO
1 2 A/CTL HEAD
CTL
CN2
CTL HEAD(+)
CTL HEAD(+)
GND
CN1
-(2.6)
-(2.6)
0
PB 1.9 Vp-p
PB 40 mVp-p
REC/PB 0.6 Vp-p
REC/PB 5.5 Vp-p
PB 0.3 Vp-p
PB 0.2 Vp-p
PB 0.5 Vp-p
PB 0.1 Vp-p
REC 6.8 Vp-p
REC 6.0 Vp-p
REC/PB 5.0 Vp-p
REC/PB 5.5 Vp-p
PB 1.8 Vp-p
REC/PB 4.4 Vp-p
C43 0.047
(-10)
Q7 DTC144ES
9.9 (0)
R33 68K
Q5 2SA1309 (Q/R)
C22 22/10
C21 22/10
R31 470K
R32 1K
R29 1M
R30 10K
C20 270P
R28 1K
C16 0.001
C18 0.001
R27 1K
C15 0.068
C14 0.001
C23 0.001
R34 680
R36 1K
R25 1K
D13
D12
SW B
SW C
SW A
SW D
VCC
CTL CLOCK
DUTY I/O
WRITE
fsc IN
REF 30
A.FF OUT
V.FF OUT
YNR OUT
V.P. OUT
MODE E
COMP. SYNC IN
NC
P.ON RESET
SERIAL DATA
SERIAL CLOCK
CFG C/D OUT
CTL C/D OUT
REC. PB. CTL
SYNC SEP
SERIAL DECODER
C/D
C/D
IC1
CAP REF
DRUM REF
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF V.P
SW H
SW K
SW E
SW F
SW G
SW J
SW I
VCC
CAP F/V OUT
CAP P/D OUT
CAP P/D FIX
DRUM P/D OUT
DRUM F/V OUT
DRUM SEL B
DRUM SEL A
DRUM PG IN
GND
SW MM
V.P. MM
REC CTL DELAY MM
MODE A SP(L)
NC
MODE C V.P(H)
MODE D D.START(H)
R1 22K
R2 2.2M
R3 47K
C3 0.22
R4 2.2K
C4 0.022
R5 15K
R6 4.7K
R7 3.9K
R8 1M
R10 27K
R11 220K
R12 1M
R13 27K
D3
D4
D5
D2
D1
C1 0.01
C2 22/10
C5 4.7/25
C6 4.7/25
C7 10/16
C8 10/16
R14 27K
R15 3.3M
C10 0.082
C9 0.18
R16 330K
R18 1K
R19 270K
R20 270K
R21 3.3K
C11 470P
R22 100K
C13 180P
R17 8.2K
D6
D7
C12 0.0068
IC1 HD49733ANT
R23 47K
MOTOR 13V
SWD 5V
C34 0.01
C35 0.1
C36 0.01
L3 27
R47 1K
C37 0.01
C38 0.01
R48 1K
R50 4.7K
AMP
S/H
VCA
IC5
TIM
OUT
GND
V/I
AMP
VCC
C39 0.01
C40 0.01
C41 22/10
C42 0.1
R49 1K
R51 1K
R52 120K
From/To
0 3
VIDEO (MAIN) CN251
CN6
(2.4) 1.8
0
0.4
1 FSC
2 GND
3 COMP SYNC
(Page 3-48)
From/To
0 3
MECHACON (MAIN) CN5
CN5
(-)0
0
(0) 9.9
0.1
-
0.1
0.1
2.6
(2.0) 5.2
(3.0) 0.3
5.1
0
1 A FF
2 AUDIO FM
3 A BIAS
4 NC
5 NC
6 NC
7 AVRG FM
8 DRUM FF
9 S DATA
10 S CLK
11 CAP FG
12 CTL PULSE
13 CTL CLOCK
14 INDEX
15 V PULSE
(Page 3-39)
From/To
0 3
MECHACON (MAIN) CN4
CN4
5.1
1.8
2.6
2.5
1.8
4.8
5.1
(3.3) 4.7
0.1
2.6
4.9
5.1
1.9
1 SERVO
2 CAPCTLV
3 CAP FG
4 DRUM CTL V
5 PAUSE
6 NC
7 YNR PULSE
8 SPCL PB
9 PB COLOR
10 V PULSE
11 CTL PULSE
12 LP ADJ
13 DRUM START
14 SW POINT ADJ
15 NC
(Page 3-39)
From
0 3
MECHACON (MAIN) CN802
CN3
12.7
0
5.2
0
1 MOTOR 13V
2 GND(M)
3 SWD 5V
4 GND
(Page 3-40)
From/To
5 8
DRUM MOTOR CN1
CN2
2.5
1.5
0
12.9
4 DRUM DRIVE
3 DRUM FG/PG
2 GND(M)
1 MOTOR 13V
ICP-F18
6
5
4
3
2
1
A
B
C
E
F
G
H

3.14 AUDIO SCHEMATIC DIAGRAM

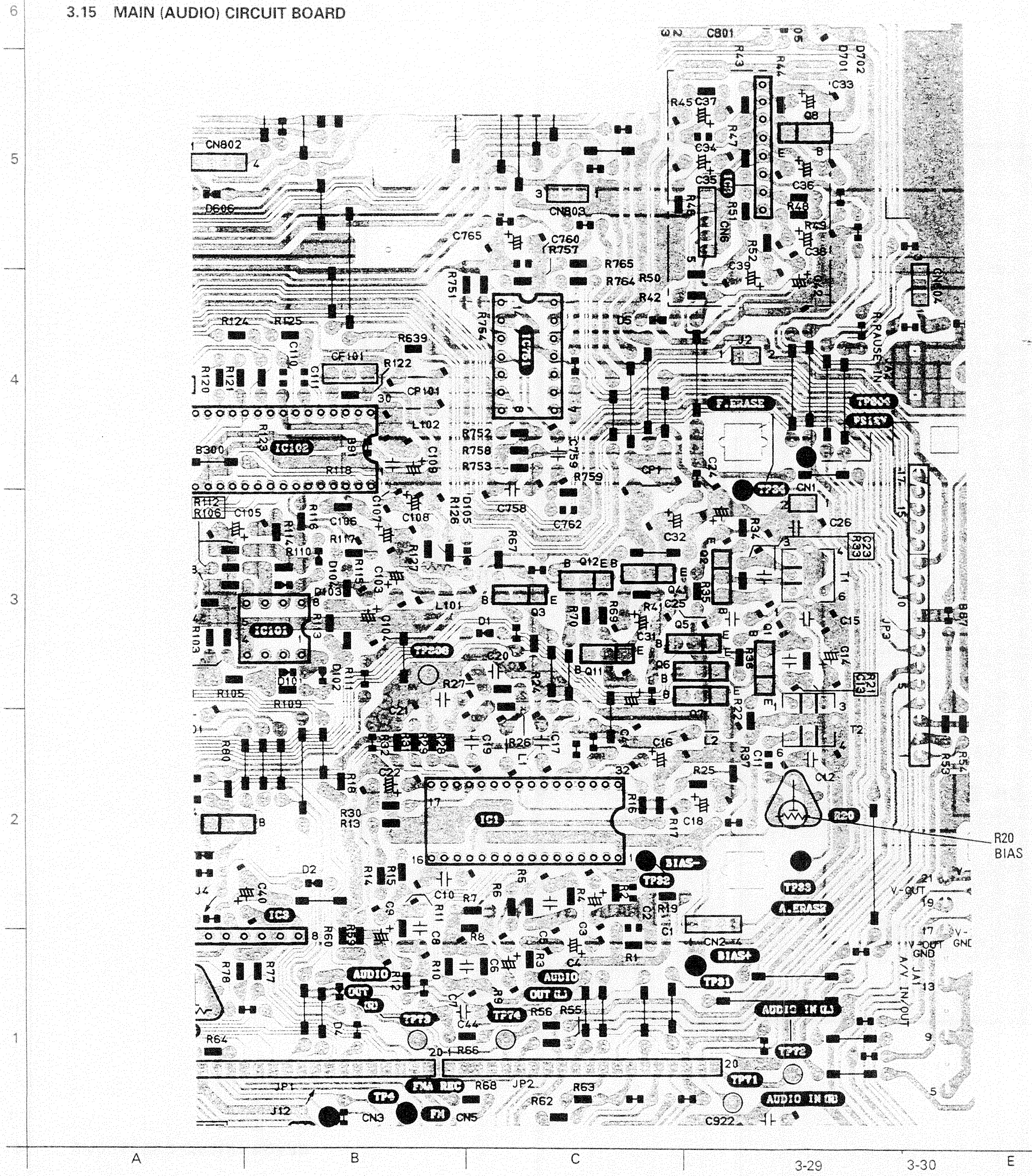


03 MAIN (AUDIO)
Q1,Q2 2SC1740S(RS)
Q5,Q6,Q7 DTA114ES
Q11 2SA854S(QR)
Q12 DTC114ES
Q3,Q4 DTA114ES
IC1 BA7765AS
Q8 2SC1740S(RS)
Q9 2SD1468S(RS)
IC2 XRA15218N
12 A/C HEAD
PB 0.1 Vp-p
REC/PB 2.5 Vp-p
REC 4.3 Vp-p
REC 46 Vp-p
REC 0.1 Vp-p
TP31 BIAS(+)
TP32 BIAS(-)
R20 BIAS
TP33 A ERASE
TP34 F ERASE
AUDIO 12V
REC 3.0 Vp-p
REC/PB 0.3 Vp-p
REC/PB 0.3 Vp-p
REC/PB 1.8 Vp-p
REC/PB 4.7 Vp-p
PB 1.0 Vp-p
R72 L EE LEVEL
R76 R EE LEVEL
IC3 XRA15218N
IC101 M5223P
IC102 M34225M2-110SP
D105 HZ7.5EB2
TP3 PB FM
TP4 REC FM
TP604 SP
SWD 9V
From/To 03 MECHACON (MAIN) (Page 3-39)
From/To 03 REGULATOR (MAIN) (Page 3-19)
From/To 24 JACK CN6 (Page 3-73)
From/To 43 PRE/REC CN1 (Page 3-74)
From/To 09 AUDIO UNIT CN1 (Page 3-53)
From/To 24 JACK CN4 (Page 3-73)
From/To 14 DEMOD CN2 (Page 3-66)
To 03 VIDEO (MAIN) (Page 3-48)
From 03 MECHACON (MAIN) (Page 3-39)
To 24 JACK CN5 (Page 3-73)
From/To 20 TIMER CN4 (Page 3-70)
To 03 TERMINAL (MAIN) (Page 3-36)
From/To 06 TERMINAL JP1 (Page 3-36)
From/To 09 AUDIO UNIT CN2 (Page 3-53)
MIC IN
GND
MIC CTL
MIC MIX
L IN(MAIN)
R IN(SUB)
FM SOUND
SWD 5V
HP CTL
HP(L)
HP(R)
AUDIO INT
AUDIO DATA
AUDIO CLK
BILING CTL
RF AUDIO OUT
AUDIO IN(L)
AUDIO IN(R)
AUDIO OUT(L)
AUDIO OUT(R)
AUDIO 12V
ALC DET
ALC ON
FIX IN(R)
FIX IN(L)
VARI IN(R)
VARI IN(L)
NORM OUT
NORM IN
RF AUDIO IN
FM SOUND
BILING/SAP CTL
TNR OUT(R)
TNR OUT(L)
AUX OUT(R)
AUX OUT(L)
UNSW 12V
UNSW 5V
S CLK
S DATA
A MUTE
HIFI DET
A BIAS
FE ON
A ERASE
REC ST
AUDIO FM
A FF
SWE 5V
MAIN LEVEL
MAIN ADJ
INPUT LEV BIAS
BAL(L)
BAL(R)
REC FM
PB FM
PB FM OUT
REC FM IN
HP CTL

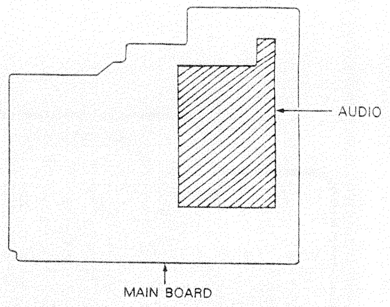
3.13 SERVO CIRCUIT BOARD


PB20549 SERVO PWB ASS'Y
PB20549 -01-01 SERVO PWB
CN1
CN2
CN3
CN4
CN5
CN6
CP1
IC1
IC2
IC3
IC4
IC5
Q1
Q2
Q3
Q4
Q5
Q7
Q8
Q9
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
L1
L2
L3
R1
R3
R4
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
R31
R32
R33
R34
R35
R36
R38
R39
R40
R41
R42
R43
R44
R45
R46
R47
R48
R49
R50
R52
R53
R54
B15
B26
B27
B29
B217
B218
C1
C3
C4
C5
C6
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
C29
C30
C31
C32
C33
C34
C35
C36
C37
C38
C39
C41
C42
C43
A
B
C
E
1
2
3
4

3.15 MAIN (AUDIO) CIRCUIT BOARD

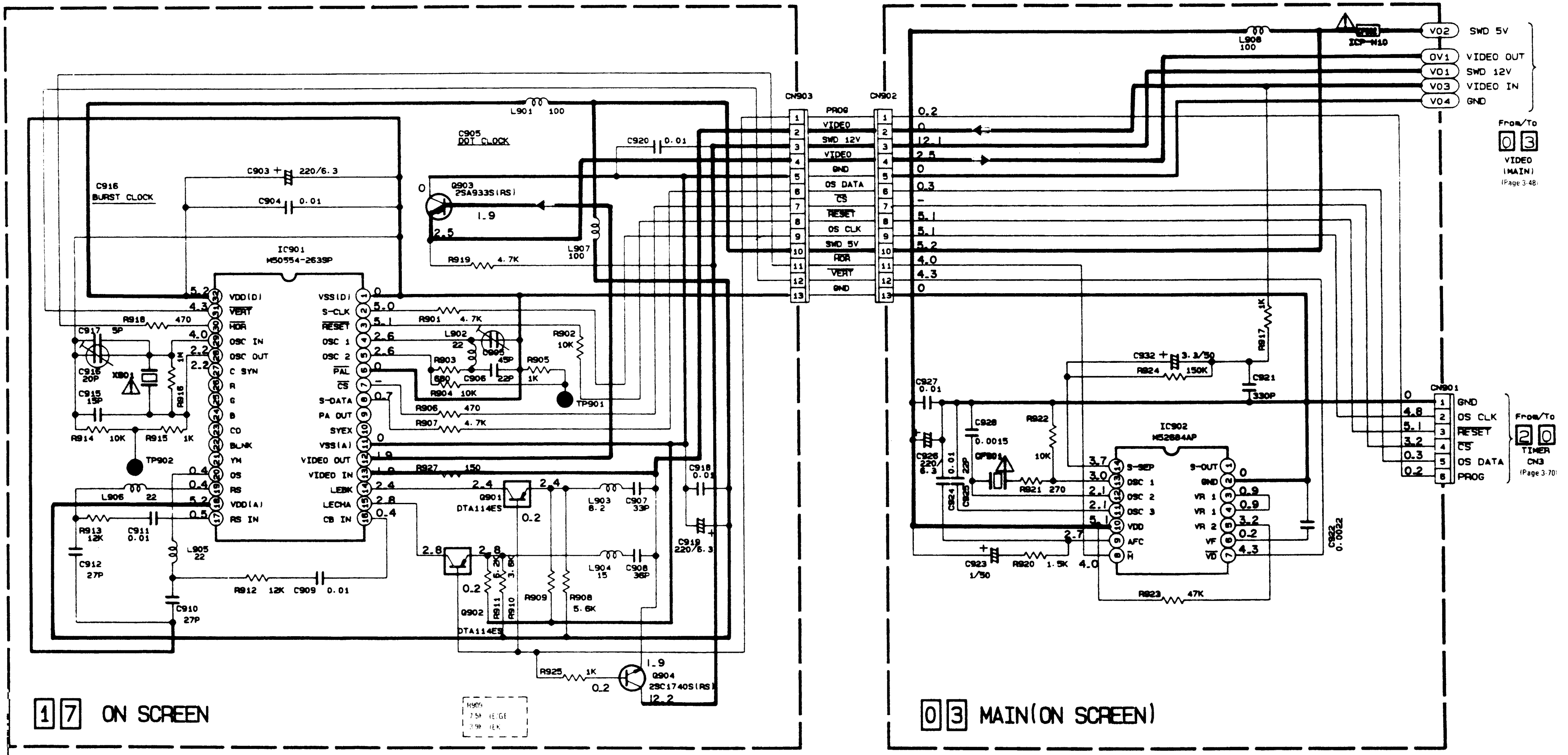

6
5
4
3
2
1
A
B
C
E
C801
R43
R44
D701
D702
C33
R45
C37
Q8
C34
R47
C35
R51
CN6
C36
R48
R49
R52
C38
C39
CN802
D606
CN803
C765
C760
R757
R751
R765
R764
R50
R42
IC761
D5
J2
R124
R125
R639
C110
CF101
R122
R120
R121
C111
CP101
L102
R123
IC102
R752
R758
R753
C109
C759
R759
B300
R118
R112
R106
C105
R116
C106
C108
R126
D105
C758
C762
F.ERASE
TP803
PB12V
C24
TP25
CN1
C26
C23
R33
R34
C32
Q12
Q2
Q4
T1
R35
C25
R41
Q5
C15
JP3
Q3
R67
R70
R69
C31
Q1
IC101
R113
D104
TP800
D1
C20
R27
Q11
Q6
R38
C14
R21
C13
D101
D102
R111
R105
R109
C21
Q7
R22
T2
R60
R32
R31
R29
R28
C19
R26
L1
C17
C16
L2
R37
C11
C12
R54
R53
R25
32
R18
R30
R13
IC1
R16
R17
C18
R20
17
16
1
BIAS−
TP82
TP83
A.ERASE
D2
J4
C40
IC3
R14
R15
C10
R7
R6
R5
R4
R2
R19
C9
R11
C8
R8
C3
C1
CN2
R60
R59
R3
C4
R1
BIAS+
TP81
V-OUT
V-OUT
GND
A/V JACK IN/OUT
R78
R77
AUDIO OUT (R)
R12
R10
C6
AUDIO OUT (L)
AUDIO IN (L)
TP73
TP74
R9
C7
R56
R55
C44
D4
R64
R65
TP72
20
JP1
J12
TP4
CN3
FMA REC
R68
JP2
R63
FM
CN5
R62
TP71
AUDIO IN (R)
C922
R20
BIAS

● MAIN board assembly is located in page 45, 46.


AUDIO
MAIN BOARD

F
G
H

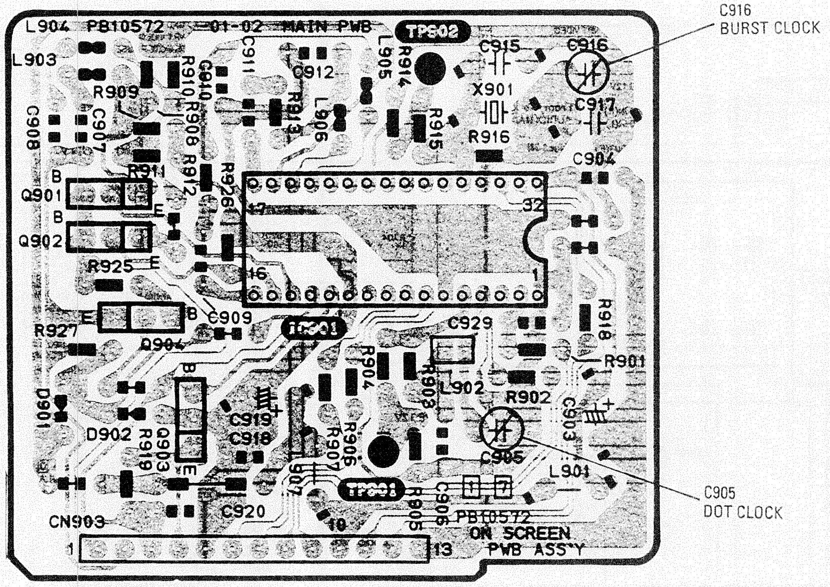
3.16 ON SCREEN SCHEMATIC DIAGRAMS



17 ON SCREEN
03 MAIN(ON SCREEN)
IC901 M50554-263SP
IC902 M52684AP
CN903
CN902
CN901
PROG
VIDEO
SWD 12V
GND
OS DATA
CS
RESET
OS CLK
SWD 5V
HDR
VERT
C905 DOT CLOCK
C916 BURST CLOCK
Q903 2SA933S(RS)
Q901 DTA114ES
Q902 DTA114ES
Q904 2SC1740S(RS)
TP901
TP902
X901
CF901
ICP-N10
VO2 SWD 5V
OV1 VIDEO OUT
VO1 SWD 12V
VO3 VIDEO IN
VO4 GND
From/To 03 VIDEO (MAIN) (Page 3-48)
From/To 20 TIMER CN3 (Page 3-70)
L901 100
L906 22
L907 100
L908 100
R919 4.7K
R918 470
R901 4.7K
R906 470
R907 4.7K
R927 150
R925 1K
R923 47K
R917 1K
R924 150K
R920 1.5K
R921 270
R922 10K

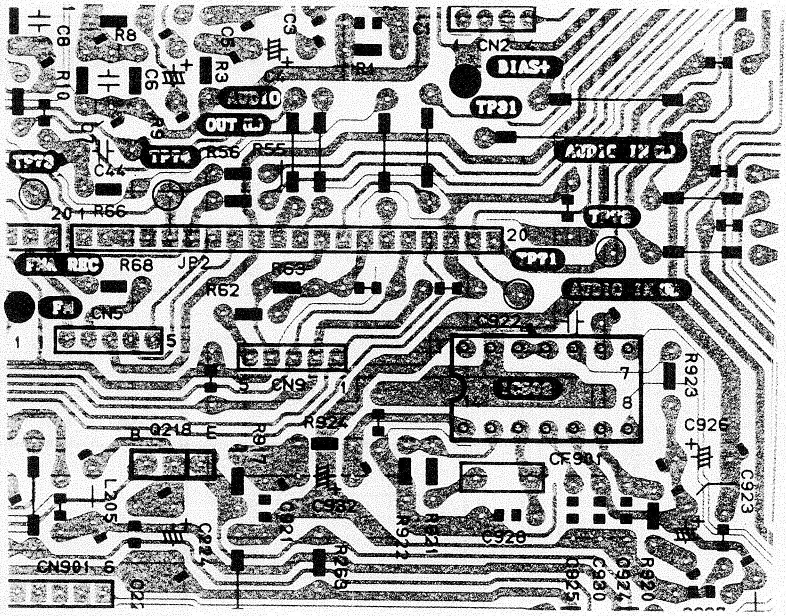
3.17 ON SCREEN AND MAIN (ON SCREEN) CIRCUIT BOARDS

— < 17 > ON SCREEN —



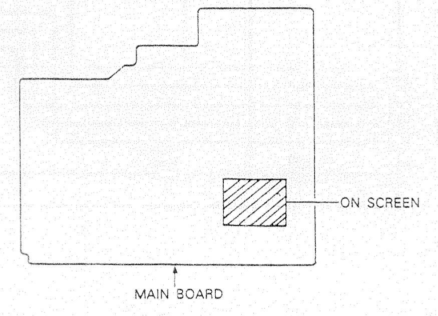
L904
PB10572-01-02 MAIN PWB
TP902
L903
R909
C911
C912
L905
R914
C915
C916
X901
R910
R908
C910
R913
L906
R915
R916
C917
C908
C907
R911
R912
R926
C904
B
Q901
E
B
Q902
17
32
R925
E
16
1
E
B
C909
IC901
C929
R918
R927
Q904
R904
R903
L902
R902
R901
D901
B
C919
C918
R906
R907
C903
D902
R919
Q903
C905
E
L907
TP901
L901
R905
C906
CN903
C920
10
PB10572
ON SCREEN
PWB ASS'Y
1
13
C916
BURST CLOCK
C905
DOT CLOCK

— < 03 > MAIN (ON SCREEN) —



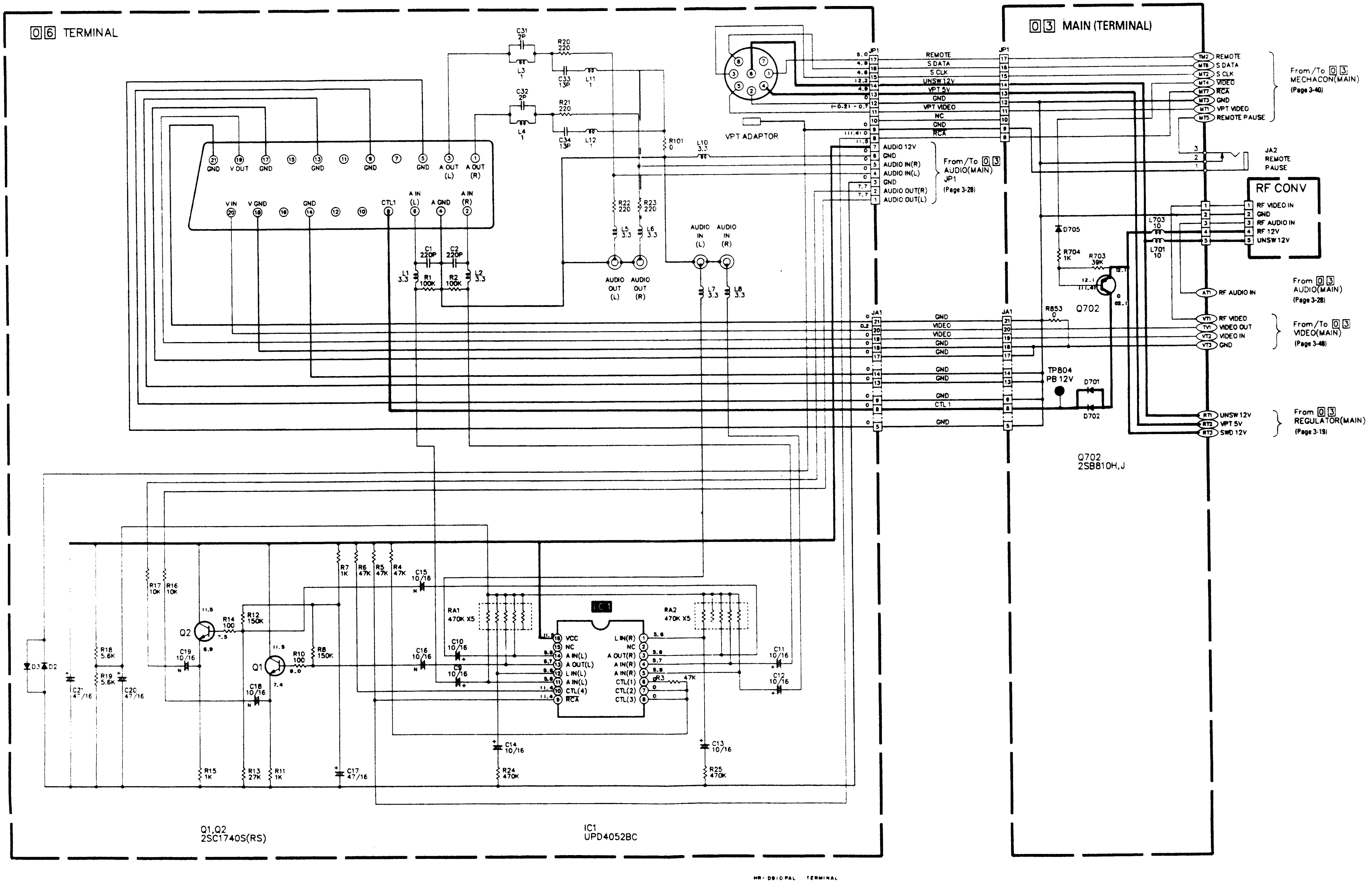
C8
R10
R8
C5
C6
R3
C3
R4
CN2
BIAS+
TP31
AUDIO
OUT
C7
R9
C44
TP73
TP74
R56
R55
AUDIO
20
R66
20
TP71
FM REC
R68
JP2
R63
R62
FM
CN5
1
5
C922
R923
7
IC902
8
5
CN9
1
B
Q218
E
R917
R924
C926
CF901
C923
L205
C921
C932
R922
R921
C928
CN901
6
R263
C925
C930
C927
R920

●MAIN board assembly is located in page 45, 46.



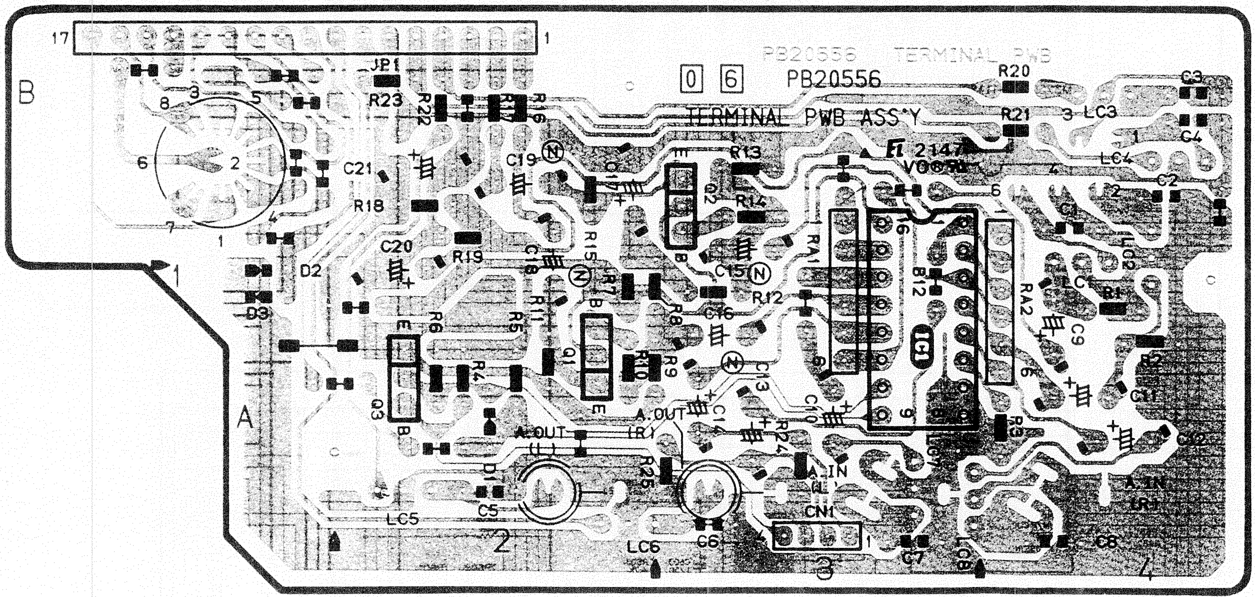
ON SCREEN
MAIN BOARD

3.18 TERMINAL SCHEMATIC DIAGRAMS

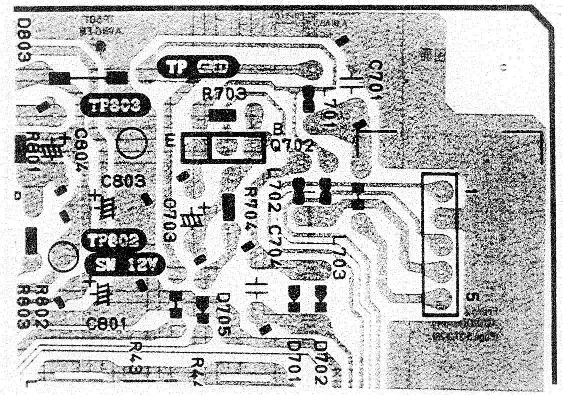

06 TERMINAL
03 MAIN (TERMINAL)
GND
V OUT
GND
GND
GND
GND
A OUT (L)
A OUT (R)
V IN
V GND
GND
CTL1
A IN (L)
A GND
A IN (R)
C31 2P
L3 1
R20 220
C33 13P
L11 1
C32 2P
L4 1
R21 220
C34 13P
L12 1
R101 0
L10 3.3
VPT ADAPTOR
R22 220
R23 220
L5 3.3
L6 3.3
C1 220P
C2 220P
L1 3.3
R1 100K
R2 100K
L2 3.3
AUDIO OUT (L)
AUDIO OUT (R)
AUDIO IN (L)
AUDIO IN (R)
L7 3.3
L8 3.3
JP1
REMOTE
S DATA
S CLK
UNSW 12V
VPT 5V
GND
VPT VIDEO
NC
GND
RCA
AUDIO 12V
GND
AUDIO IN(R)
AUDIO IN(L)
GND
AUDIO OUT(R)
AUDIO OUT(L)
From/To 03 AUDIO(MAIN) JP1 (Page 3-28)
TM2 REMOTE
MT6 S DATA
MT2 S CLK
MT4 VIDEO
MT7 RCA
MT3 GND
MT1 VPT VIDEO
MT5 REMOTE PAUSE
From/To 03 MECHACON(MAIN) (Page 3-40)
JA2 REMOTE PAUSE
RF CONV
RF VIDEO IN
GND
RF AUDIO IN
RF 12V
UNSW 12V
L703 10
L701 10
D705
R704 1K
R703 39K
Q702
AT1 RF AUDIO IN
From 03 AUDIO(MAIN) (Page 3-28)
JA1
GND
VIDEO
VIDEO
GND
GND
GND
GND
GND
CTL 1
GND
R853 0
VT1 RF VIDEO
TV1 VIDEO OUT
VT2 VIDEO IN
VT3 GND
From/To 03 VIDEO(MAIN) (Page 3-48)
TP804 PB 12V
D701
D702
RT1 UNSW 12V
RT2 VPT 5V
RT3 SWD 12V
From 03 REGULATOR(MAIN) (Page 3-19)
Q702 2SB810H,J
R17 10K
R16 10K
R18 5.6K
R19 5.6K
D3
D2
C21 47/16
C20 47/16
Q2
R14 100
R12 150K
C19 10/16
Q1
R10 100
R8 150K
C18 10/16
R7 1K
R6 47K
R5 47K
R4 47K
C15 10/16
C16 10/16
C10 10/16
C9 10/16
RA1 470K X5
IC1
RA2 470K X5
VCC
NC
A IN(L)
A OUT(L)
L IN(L)
A IN(L)
CTL(4)
RCA
L IN(R)
NC
A OUT(R)
A IN(R)
A IN(R)
CTL(1)
CTL(2)
CTL(3)
R3 47K
C11 10/16
C12 10/16
C14 10/16
C13 10/16
R15 1K
R13 27K
R11 1K
C17 47/16
R24 470K
R25 470K
Q1,Q2 2SC1740S(RS)
IC1 UPD4052BC
HR-D810PAL TERMINAL

3.19 TERMINAL AND MAIN (TERMINAL) CIRCUIT BOARDS

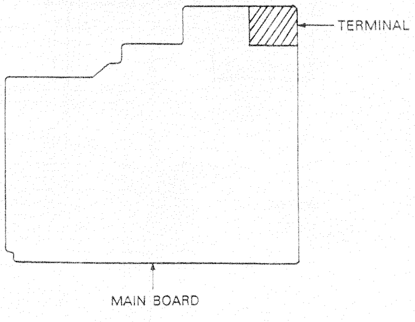
— < 06 > TERMINAL —


17
1
B
A
JP1
R23
R22
R16
C21
R18
C20
R19
D2
D3
Q3
R6
R5
R4
C19
C17
Q2
R13
R14
R15
R7
R11
Q1
R10
R9
R8
C15
C16
R12
C18
C13
C14
R24
R25
A.OUT (L)
A.OUT (R)
D1
C5
LC5
LC6
C6
0 6
PB20556
TERMINAL PWB ASS'Y
PB20556 TERMINAL PWB
R20
R21
LC3
LC4
C3
C4
C2
C1
RA1
RA2
IC1
C10
C9
C11
C12
R1
R2
R3
A.IN (L)
A.IN (R)
CN1
C7
LC8
C8
2
3
4

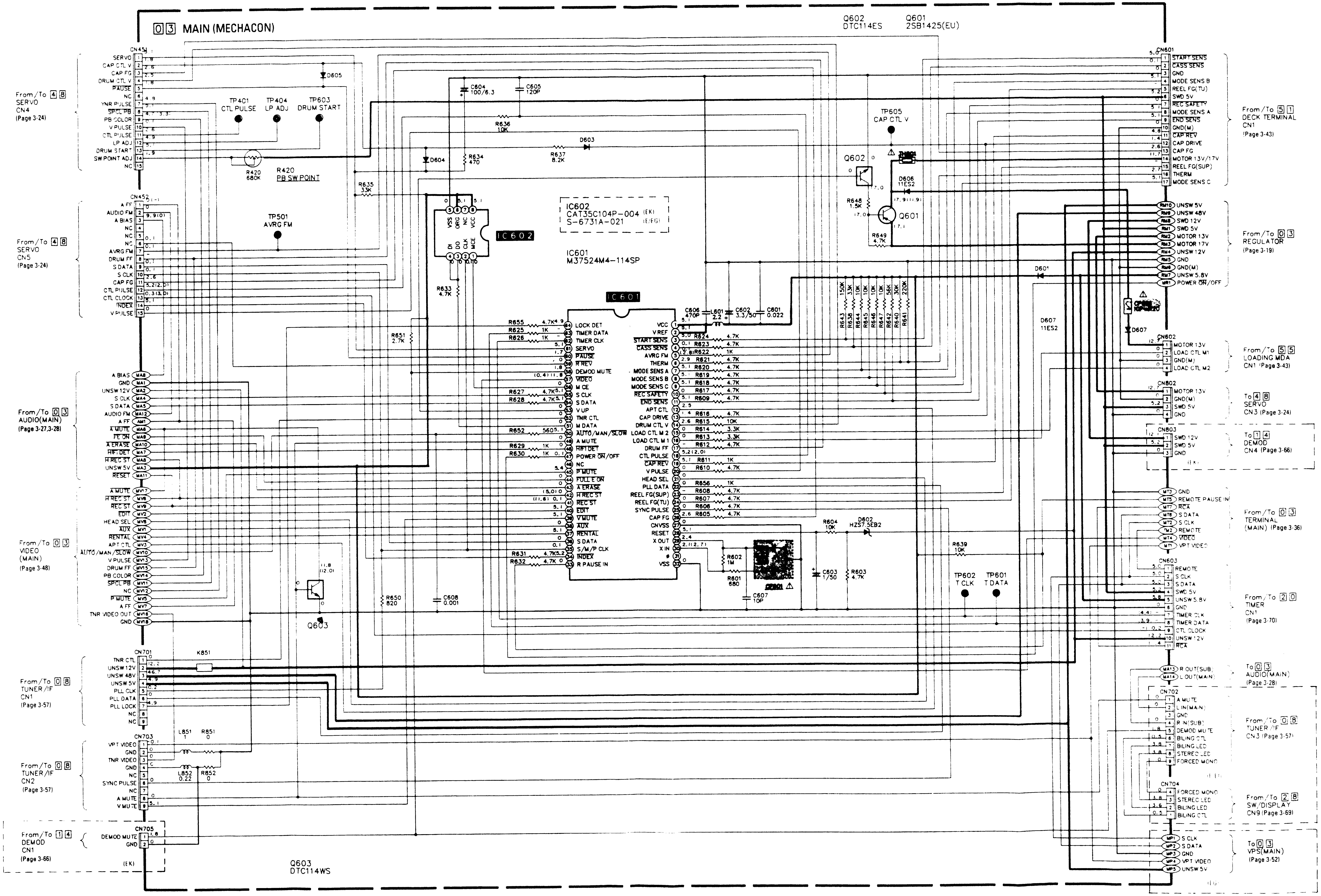
— < 03 > MAIN (TERMINAL) —


D803
TP GND
TP803
R703
C701
L701
R801
C802
C803
Q702
E
B
Q703
R704
L702
C704
L703
TP802
SW 12V
R802
R803
C801
R43
R44
D705
D701
D702
1
5

● MAIN board assembly is located in page 45, 46.

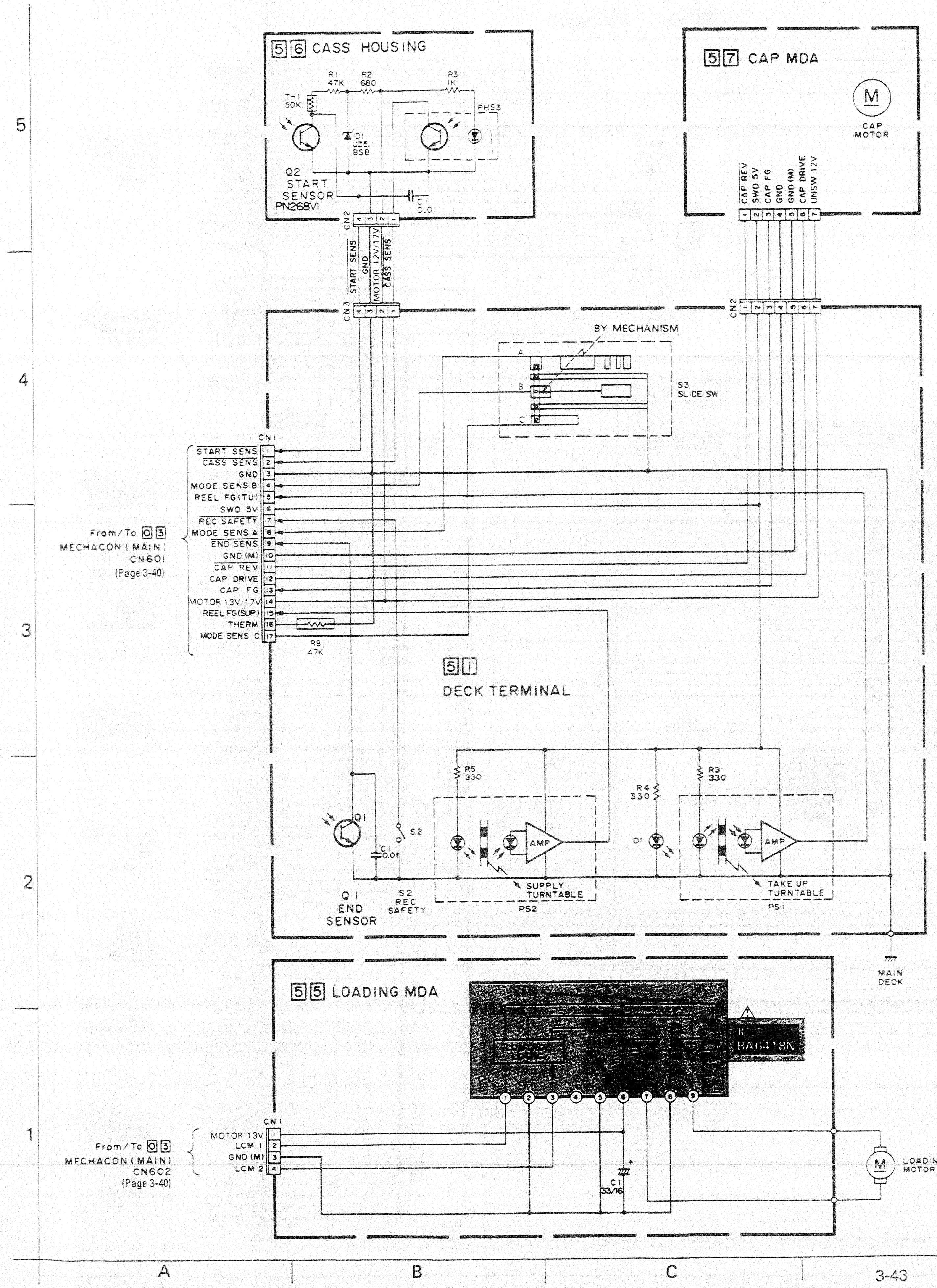

TERMINAL
MAIN BOARD

3.20 MECHACON SCHEMATIC DIAGRAM



03 MAIN (MECHACON)
Q602 DTC114ES
Q601 2SB1425(EU)
CN451
From/To 48 SERVO CN4 (Page 3-24)
SERVO
CAP CTL V
CAP FG
DRUM CTL V
PAUSE
NC
YNR PULSE
SPCL PB
PB COLOR
V PULSE
CTL PULSE
LP ADJ
DRUM START
SW POINT ADJ
NC
TP401 CTL PULSE
TP404 LP ADJ
TP603 DRUM START
R420 680K
R420 PB SW POINT
D605
C604 100/6.3
C605 120P
R636 10K
D603
R637 8.2K
R634 470
D604
R635 33K
CN452
From/To 48 SERVO CN5 (Page 3-24)
A FF
AUDIO FM
A BIAS
AVRG FM
DRUM FF
S DATA
S CLK
CAP FG
CTL PULSE
CTL CLOCK
INDEX
V PULSE
TP501 AVRG FM
IC602
IC602 CAT35C104P-004 (EK) S-6731A-021 (E/EG)
IC601 M37524M4-114SP
IC601
R633 4.7K
R651 2.7K
TP605 CAP CTL V
Q602
Q601
D606 11ES2
R648 1.5K
R649 4.7K
D601
D607 11ES2
CN601
From/To 51 DECK TERMINAL CN1 (Page 3-43)
START SENS
CASS SENS
GND
MODE SENS B
REEL FG(TU)
SWD 5V
REC SAFETY
MODE SENS A
END SENS
GND(M)
CAP REV
CAP DRIVE
CAP FG
MOTOR 13V/17V
REEL FG(SUP)
THERM
MODE SENS C
From/To 03 REGULATOR (Page 3-19)
UNSW 5V
UNSW 48V
SWD 12V
SWD 5V
MOTOR 13V
MOTOR 17V
UNSW 12V
GND
GND(M)
UNSW 5.8V
POWER ON/OFF
CN602
From/To 55 LOADING MDA CN1 (Page 3-43)
MOTOR 13V
LOAD CTL M1
GND(M)
LOAD CTL M2
CN802
To 48 SERVO CN3 (Page 3-24)
CN803
To 14 DEMOD CN4 (Page 3-66)
(EK)
From/To 03 TERMINAL (MAIN) (Page 3-36)
GND
REMOTE PAUSE IN
RCA
S DATA
S CLK
REMOTE
VIDEO
VPT VIDEO
CN603
From/To 20 TIMER CN1 (Page 3-70)
REMOTE
S CLK
S DATA
SWD 5V
UNSW 5.8V
GND
TIMER CLK
TIMER DATA
CTL CLOCK
UNSW 12V
RCA
To 03 AUDIO(MAIN) (Page 3-28)
R OUT(SUB)
L OUT(MAIN)
CN702
From/To 08 TUNER/IF CN3 (Page 3-57)
A MUTE
L IN(MAIN)
GND
R IN(SUB)
DEMOD MUTE
BILING CTL
BILING LED
STEREO LED
FORCED MONO
CN704
From/To 28 SW/DISPLAY CN9 (Page 3-69)
FORCED MONO
STEREO LED
BILING LED
BILING CTL
To 03 VPS(MAIN) (Page 3-52)
S CLK
S DATA
GND
VPT VIDEO
UNSW 5V
From/To 03 AUDIO(MAIN) (Page 3-27, 3-28)
A BIAS
GND
UNSW 12V
S CLK
S DATA
AUDIO FM
A FF
A MUTE
FE ON
A ERASE
HIFI DET
H REC ST
UNSW 5V
RESET
From/To 03 VIDEO (MAIN) (Page 3-48)
A MUTE
H REC ST
REC ST
EDIT
HEAD SEL
AUX
RENTAL
APT CTL
AUTO/MAN/SLOW
V PULSE
DRUM FF
PB COLOR
SPCL PB
NC
P MUTE
A FF
TNR VIDEO OUT
GND
Q603
Q603 DTC114WS
R650 820
C608 0.001
CN701
From/To 08 TUNER/IF CN1 (Page 3-57)
TNR CTL
UNSW 12V
UNSW 48V
UNSW 5V
PLL CLK
PLL DATA
PLL LOCK
NC
K851
CN703
From/To 08 TUNER/IF CN2 (Page 3-57)
VPT VIDEO
GND
TNR VIDEO
GND
NC
SYNC PULSE
NC
A MUTE
V MUTE
L851
R851
L852 0.22
R852
CN705
From/To 14 DEMOD CN1 (Page 3-66)
DEMOD MUTE
GND
(EK)
LOCK DET
TIMER DATA
TIMER CLK
SERVO
PAUSE
R REV
DEMOD MUTE
VIDEO
M CE
S CLK
S DATA
V UP
TNR CTL
M DATA
AUTO/MAN/SLOW
A MUTE
HIFI DET
POWER ON/OFF
NC
P MUTE
FULL E ON
A ERASE
H REC ST
REC ST
EDIT
V MUTE
AUX
RENTAL
S DATA
S/M/P CLK
INDEX
R PAUSE IN
VCC
V REF
START SENS
CASS SENS
AVRG FM
THERM
MODE SENS A
MODE SENS B
MODE SENS C
REC SAFETY
END SENS
APT CTL
CAP DRIVE
DRUM CTL V
LOAD CTL M 2
LOAD CTL M 1
DRUM FF
CTL PULSE
CAP REV
V PULSE
HEAD SEL
PLL DATA
REEL FG(SUP)
REEL FG(TU)
SYNC PULSE
CAP FG
CNVSS
RESET
X OUT
X IN
VSS
C606 470P
L601 2.2
C602 3.3/50
C601 0.022
R604 10K
D602 HZS7.5EB2
R639 10K
R602 1M
R601 680
C607 10P
C603 1/50
R603 4.7K
CF601
TP602 T CLK
TP601 T DATA
A
B
C
D
E
F
G
H
1
2
3
4
5
6

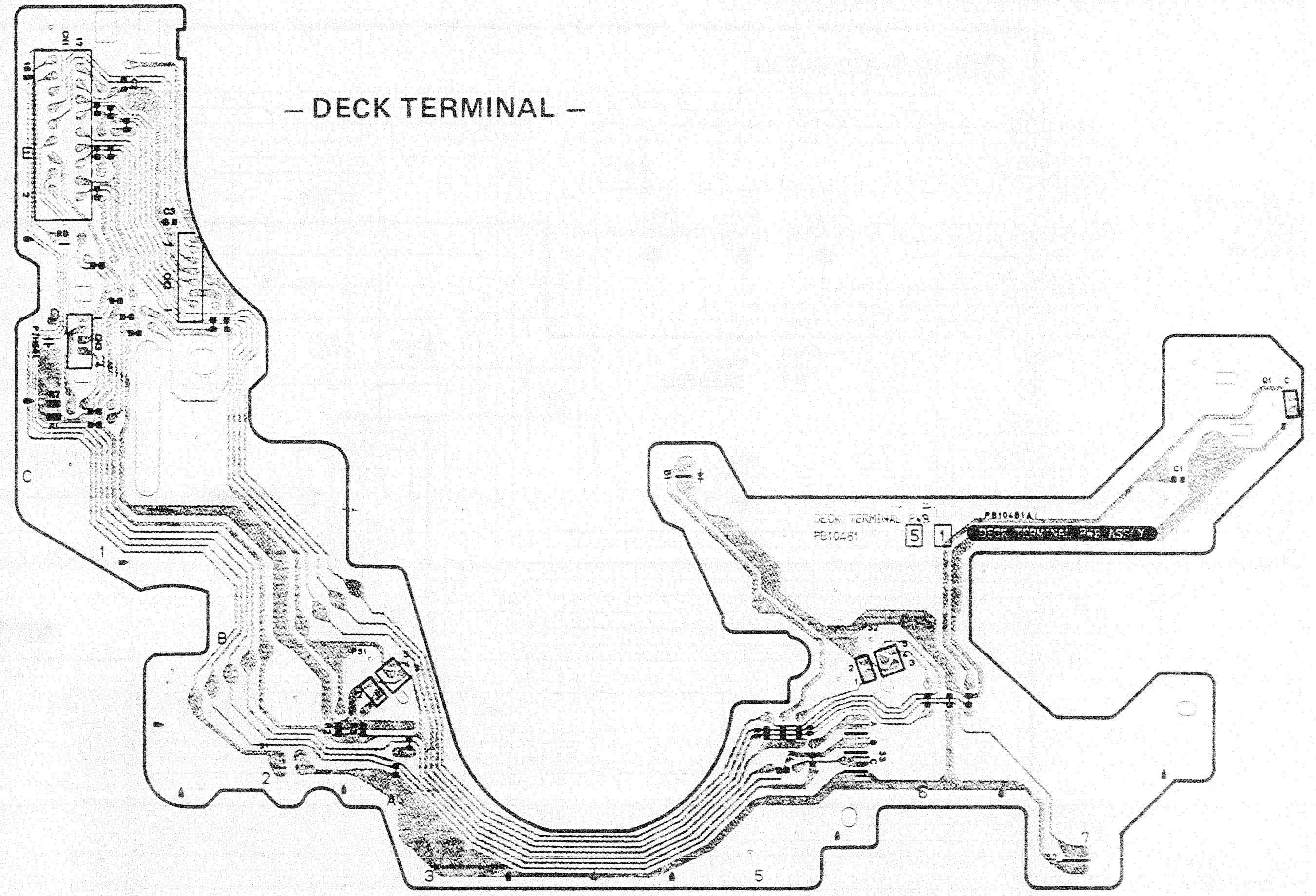
3.22 DECK TERMINAL, LOADING MDA, CAPSTAN MDA AND CASS. HOUSING SCHEMATIC DIAGRAMS



5 6 CASS HOUSING
R1 47K
R2 680
R3 1K
TH1 50K
D1 UZ5.1 BSB
PHS3
Q2 START SENSOR PN268V1
C 0.01
CN2
START SENS
GND
MOTOR 12V/17V
CASS SENS
CN3
5 7 CAP MDA
M
CAP MOTOR
CAP REV
SWD 5V
CAP FG
GND
GND (M)
CAP DRIVE
UNSW 12V
CN2
BY MECHANISM
S3 SLIDE SW
CN1
START SENS
CASS SENS
GND
MODE SENS B
REEL FG(TU)
SWD 5V
REC SAFETY
MODE SENS A
END SENS
GND (M)
CAP REV
CAP DRIVE
CAP FG
MOTOR 13V/17V
REEL FG(SUP)
THERM
MODE SENS C
From/To 0 3 MECHACON (MAIN) CN601 (Page 3-40)
R8 47K
5 1 DECK TERMINAL
R5 330
R4 330
R3 330
Q1
S2
C1 0.01
D1
AMP
SUPPLY TURNTABLE PS2
TAKE UP TURNTABLE PS1
Q1 END SENSOR
S2 REC SAFETY
MAIN DECK
5 5 LOADING MDA
IC1 BA6418N
CN1
MOTOR 13V
LCM 1
GND (M)
LCM 2
From/To 0 3 MECHACON (MAIN) CN602 (Page 3-40)
C1 33/16
M LOADING MOTOR
5
4
3
2
1
A
B
C

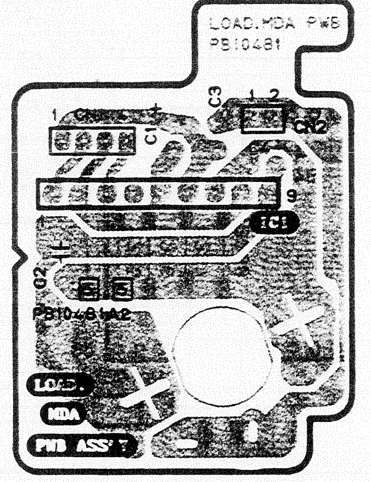
3.23 DECK TERMINAL, LOADING MDA, C. HOUSING, A/C HEAD CIRCUIT BOARDS

– DECK TERMINAL –



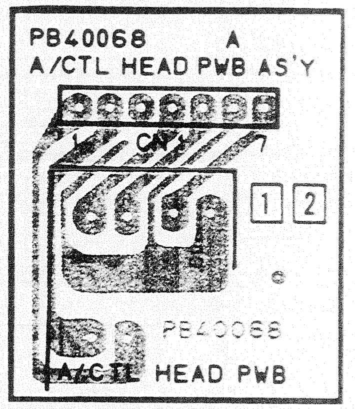
DECK TERMINAL PWB ASS'Y
PB10481
5 1
1
2
3
5
6
7
B
C

– LOADING MDA –



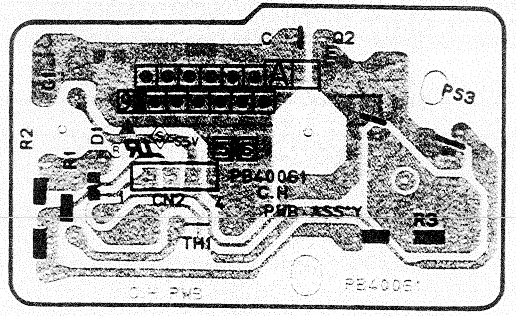
LOAD. MDA PWB
PB10481
CN1
CN2
C3
IC1
5 5
PB10481A2
LOAD. MDA PWB ASS'Y

– A/CTL HEAD –



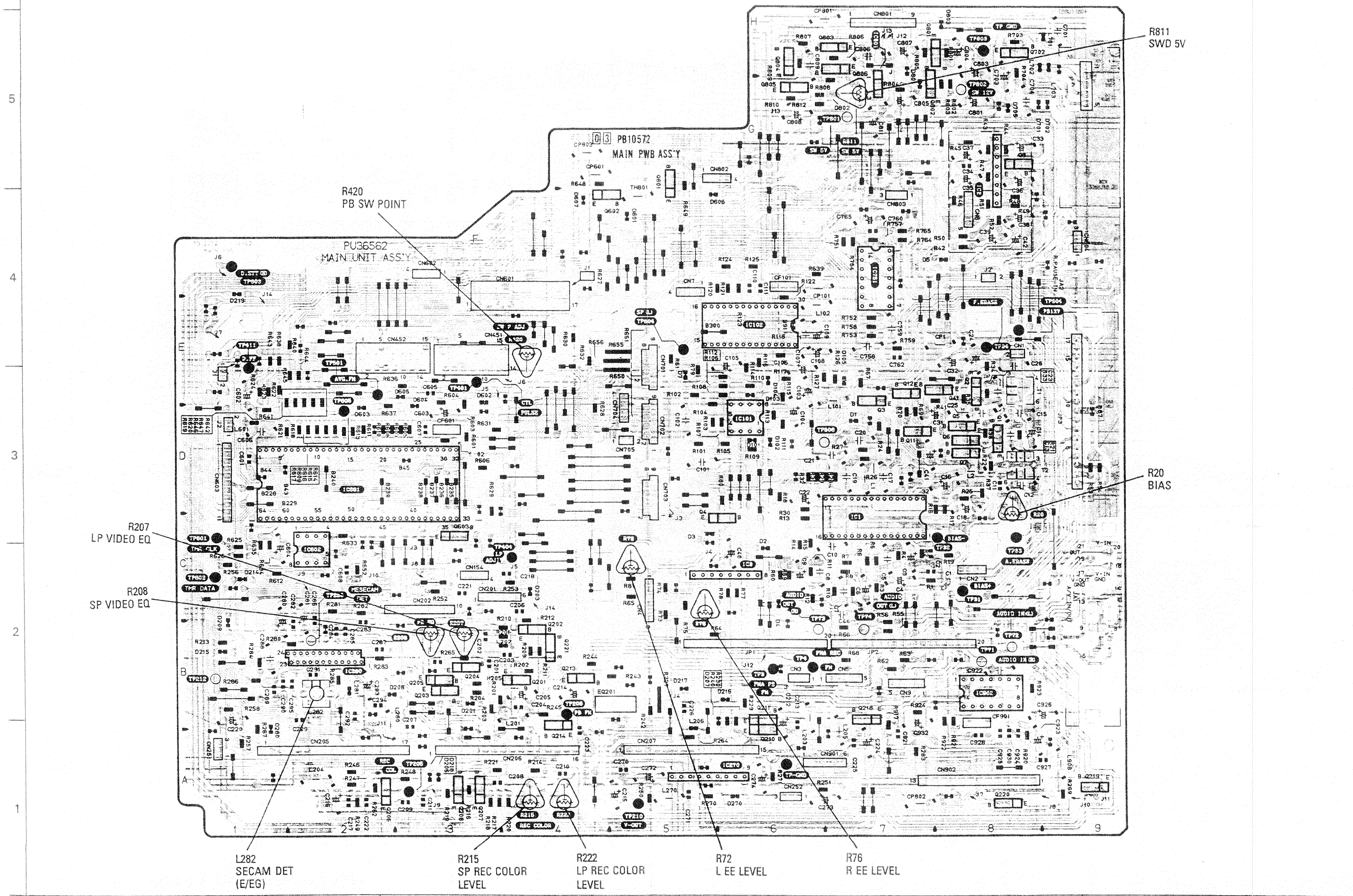
PB40068 A
A/CTL HEAD PWB AS'Y
CN1
1
7
1 2
PB40068
A/CTL HEAD PWB

– CASSETTE HOUSING –

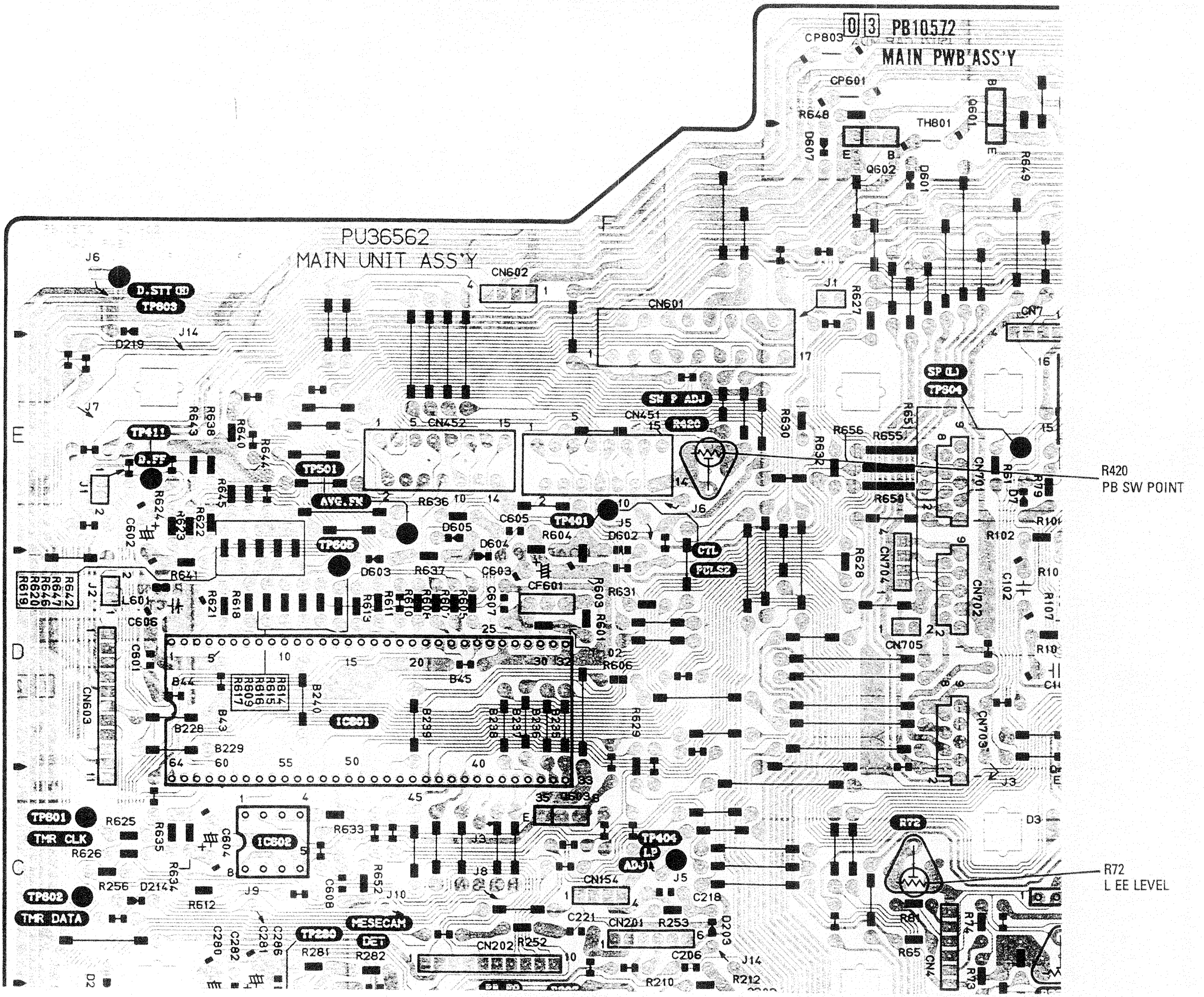


C
Q2
PS3
R2
R1
D1
PB40061
C.H PWB ASS'Y
CN2
TH1
R3
C.H PWB
PB40061

3.24 MAIN CIRCUIT BOARD

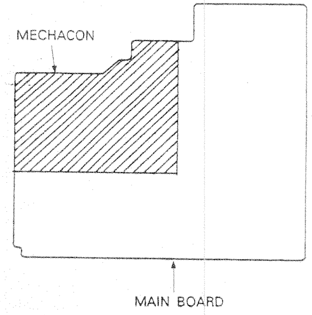

6
5
4
3
2
1
PB10572
MAIN PWB ASS'Y
PU36562
MAIN UNIT ASS'Y
R811
SWD 5V
R420
PB SW POINT
R207
LP VIDEO EQ
R208
SP VIDEO EQ
R20
BIAS
L282
SECAM DET
(E/EG)
R215
SP REC COLOR
LEVEL
R222
LP REC COLOR
LEVEL
R72
L EE LEVEL
R76
R EE LEVEL
A
B
C
E
F
G
H

3.21 MAIN (MECHACON) CIRCUIT BOARD



03 PB10572
MAIN PWB ASS'Y
PU36562
MAIN UNIT ASS'Y
D.STT
TP603
TP411
D.FF
TP501
AVG.FX
TP605
TP401
SW P ADJ
R420
CTL
PULSE
SP (L)
TP604
IC601
IC602
TP601
TMR CLK
TP602
TMR DATA
TP280
MESECAM
DET
TP404
LP
ADJ
R72
CN601
CN602
CN451
CN452
CN603
CN701
CN702
CN703
CN704
CN705
CN154
CN201
CN202
R420
PB SW POINT
R72
L EE LEVEL

● MAIN board assembly is located in page 45, 46.

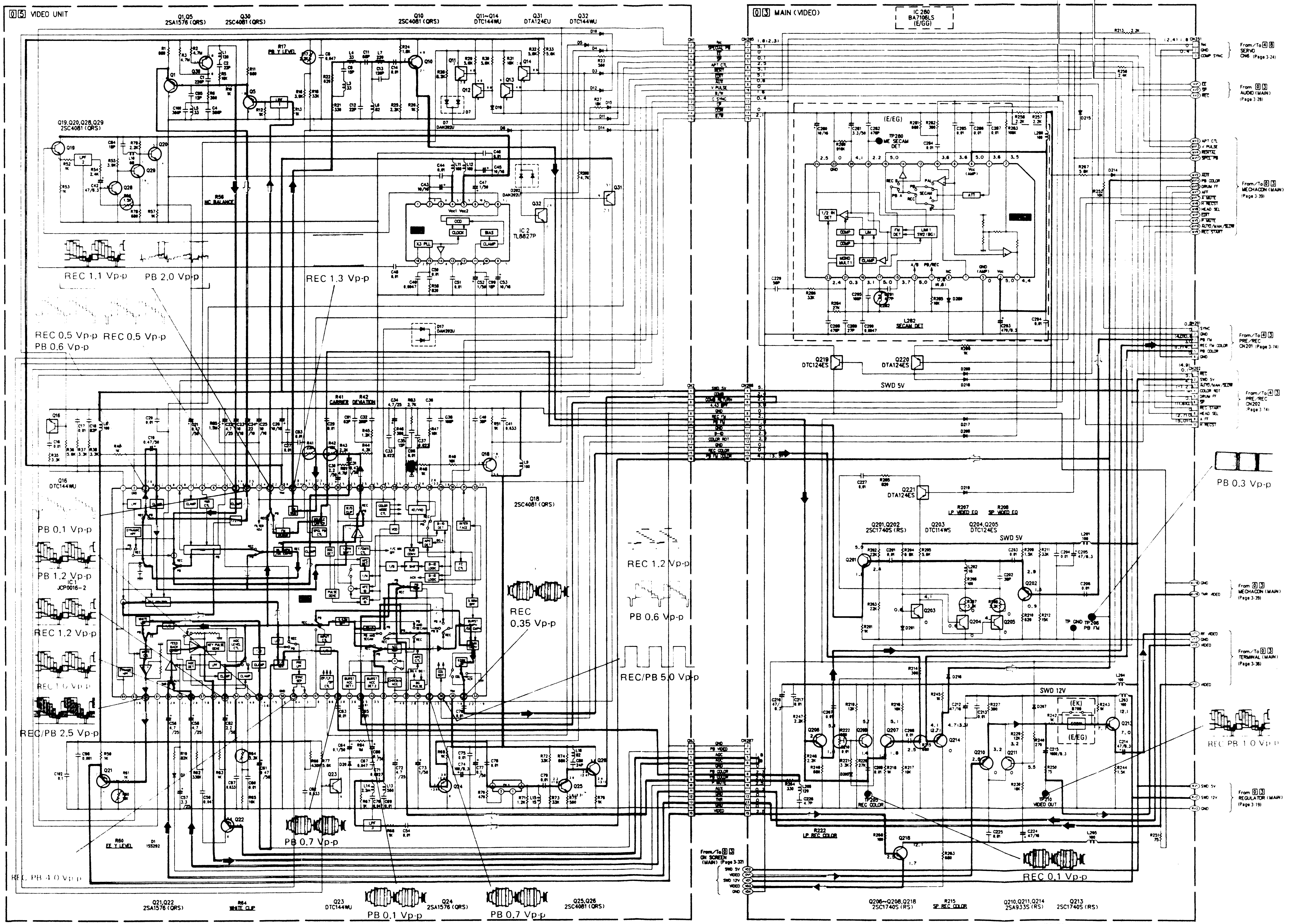


MECHACON
MAIN BOARD

6
5
4
E
3
D
2
C
1

A B C 3-41 3-42 E F G H

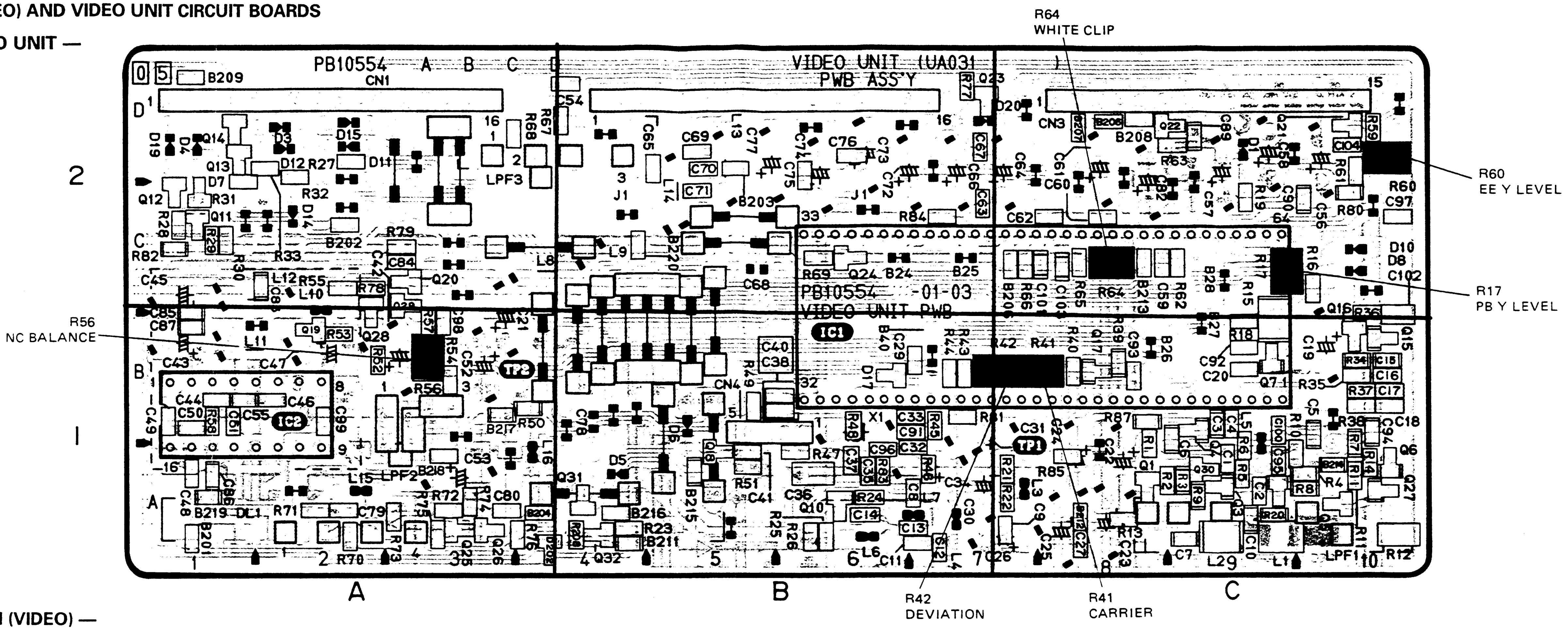
3.25 VIDEO AND VIDEO UNIT SCHEMATIC DIAGRAMS



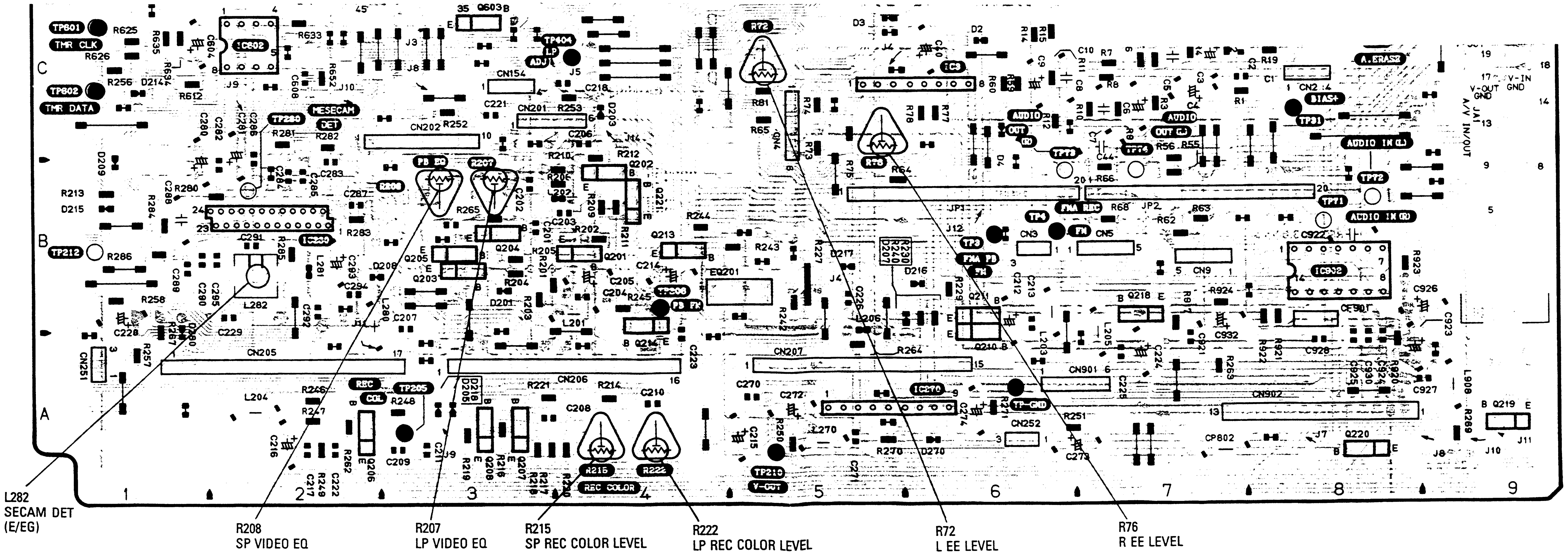
05 VIDEO UNIT
Q1,Q5 2SA1576 (QRS)
Q30 2SC4081 (QRS)
Q10 2SC4081 (QRS)
Q11~Q14 DTC144WU
Q31 DTA124EU
Q32 DTC144WU
Q19,Q20,Q28,Q29 2SC4081 (QRS)
R17 PB Y LEVEL
R56 NC BALANCE
IC 2 TL8827P
D17 DAN202U
REC 1.1 Vp-p
PB 2.0 Vp-p
REC 1.3 Vp-p
REC 0.5 Vp-p
REC 0.5 Vp-p
PB 0.6 Vp-p
R41 CARRIER
R42 DEVIATION
Q16 DTC144WU
Q18 2SC4081 (QRS)
PB 0.1 Vp-p
PB 1.2 Vp-p
IC 1 JCP0016-2
REC 1.2 Vp-p
REC 1.0 Vp-p
REC/PB 2.5 Vp-p
REC 0.35 Vp-p
REC 1.2 Vp-p
PB 0.6 Vp-p
REC/PB 5.0 Vp-p
PB 0.7 Vp-p
R60 EE Y LEVEL
D1 1SS292
REC/PB 4.0 Vp-p
Q21,Q22 2SA1576 (QRS)
R64 WHITE CLIP
Q23 DTC144WU
Q24 2SA1576 (QRS)
Q25,Q26 2SC4081 (QRS)
PB 0.1 Vp-p
PB 0.7 Vp-p
03 MAIN (VIDEO)
IC 280 BA7106LS (E/GG)
(E/EG)
TP280 ME SECAM DET
L282 SECAM DET
Q219 DTC124ES
Q220 DTA124ES
SWD 5V
Q221 DTA124ES
R207 LP VIDEO EQ
R208 SP VIDEO EQ
Q201,Q202 2SC1740S (RS)
Q203 DTC114WS
Q204,Q205 DTC124ES
TP GND
TP206 PB FM
PB 0.3 Vp-p
SWD 12V
(EK)
(E/EG)
TP203 REC COLOR
TP210 VIDEO OUT
R222 LP REC COLOR
REC/PB 1.0 Vp-p
REC 0.1 Vp-p
From/To 03 ON SCREEN (MAIN) (Page 3-32)
Q206~Q208,Q218 2SC1740S (RS)
R215 SP REC COLOR
Q210,Q211,Q214 2SA933S (RS)
Q213 2SC1740S (RS)
From/To 48 SERVO CN6 (Page 3-24)
From 03 AUDIO (MAIN) (Page 3-28)
From/To 03 MECHACON (MAIN) (Page 3-39)
From/To 43 PRE/REC CN201 (Page 3-74)
From/To 43 PRE/REC CN202 (Page 3-74)
From 03 MECHACON (MAIN) (Page 3-39)
From/To 03 TERMINAL (MAIN) (Page 3-38)
From 03 REGULATOR (MAIN) (Page 3-19)

3.26 MAIN (VIDEO) AND VIDEO UNIT CIRCUIT BOARDS

— < 05 > VIDEO UNIT —


R64
WHITE CLIP
R60
EE Y LEVEL
R17
PB Y LEVEL
R56
NC BALANCE
R42
DEVIATION
R41
CARRIER
VIDEO UNIT (UA031)
PWB ASS'Y
PB10554-01-03
VIDEO UNIT PWB
A
B
C

— < 03 > MAIN (VIDEO) —


L282
SECAM DET
(E/EG)
R208
SP VIDEO EQ
R207
LP VIDEO EQ
R215
SP REC COLOR LEVEL
R222
LP REC COLOR LEVEL
R72
L EE LEVEL
R76
R EE LEVEL

- Address of chip parts

1D
└—Address

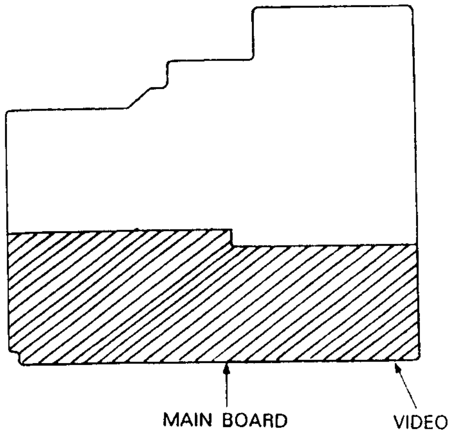
REF No.	LOCATION
TRANSISTOR	
Q1	1C
Q5	1C
Q10	1B
Q11	2A
Q12	2A
Q13	2A
Q14	2A
Q16	2C
Q18	1B
Q19	1A
Q20	2A
Q21	2C
Q22	2C
Q23	2B
Q24	2B
Q25	1A
Q26	1A
Q28	1A
Q29	2A
Q30	1C
Q31	1B
Q32	1B
DIODE	
D7	2A
D17	1B
D202	1A
RESISTOR	
R1	1C
R2	1C
R3	1C
R5	1C
R6	1C
R10	1C
R11	1C
R12	1C
R13	1C
R16	2C
R17	2C
R18	1C
R19	2C
R21	1C
R22	1C
R23	1B
R24	1B
R25	1B
R26	1B
R27	2A
R28	2A
R29	2A
R30	2A
R31	2A
R32	2A
R33	2A
R35	1C
R36	2C
R37	1C
R38	1C
R40	1C
R41	1C
R42	1C
R43	1B
R44	1B
R45	1B

REF No.	LOCATION
RESISTOR	
R46	1B
R47	1B
R48	1B
R49	1B
R51	1B
R52	1A
R53	1A
R54	1A
R55	2A
R56	1A
R57	1A
R58	1A
R59	2C
R60	2C
R61	2C
R62	2C
R63	2C
R64	2C
R65	2C
R66	2C
R67	2A
R68	2A
R69	2B
R70	1A
R71	1A
R72	1A
R73	1A
R74	1A
R75	1A
R76	1A
R77	2B
R78	2A
R79	2A
R81	1B
R83	1B
R84	2B
R85	1C
R208	1B

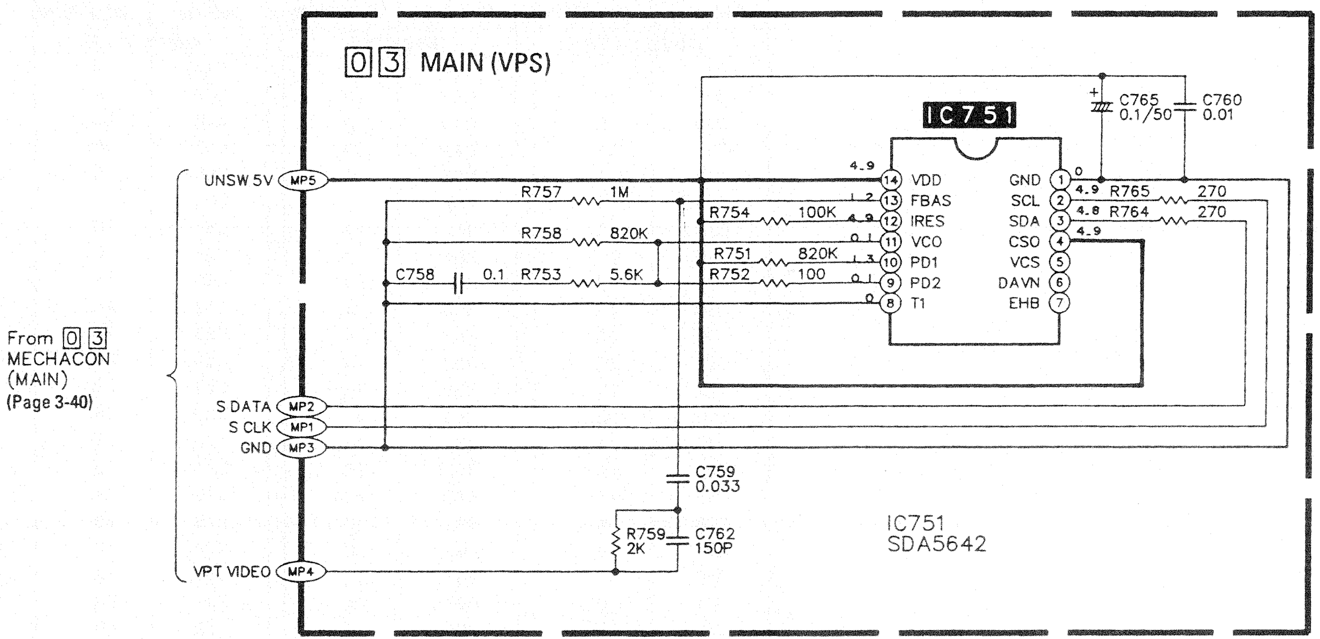
REF No.	LOCATION
CAPACITOR	
C1	1C
C2	1C
C4	1C
C8	1B
C9	1C
C11	1B
C12	1B
C13	1B
C14	1B
C16	1C
C17	1C
C18	1C
C20	1C
C27	1C
C29	1B
C32	1B
C33	1B
C35	1B
C36	1B
C37	1B
C38	1B
C40	1B
C41	1B

REF No.	LOCATION
CAPACITOR	
C44	1A
C46	1A
C48	1A
C49	1A
C50	1A
C51	1A
C54	2B
C59	2C
C60	2C
C62	2C
C63	2B
C65	2B
C67	2B
C69	2B
C70	2B
C71	2B
C75	2B
C76	2B
C79	1A
C80	1A
C84	2A
C91	1B
C93	1C
C95	1C
C96	1B
C97	2C
C98	1A
C99	1A
C100	1C
C102	2C

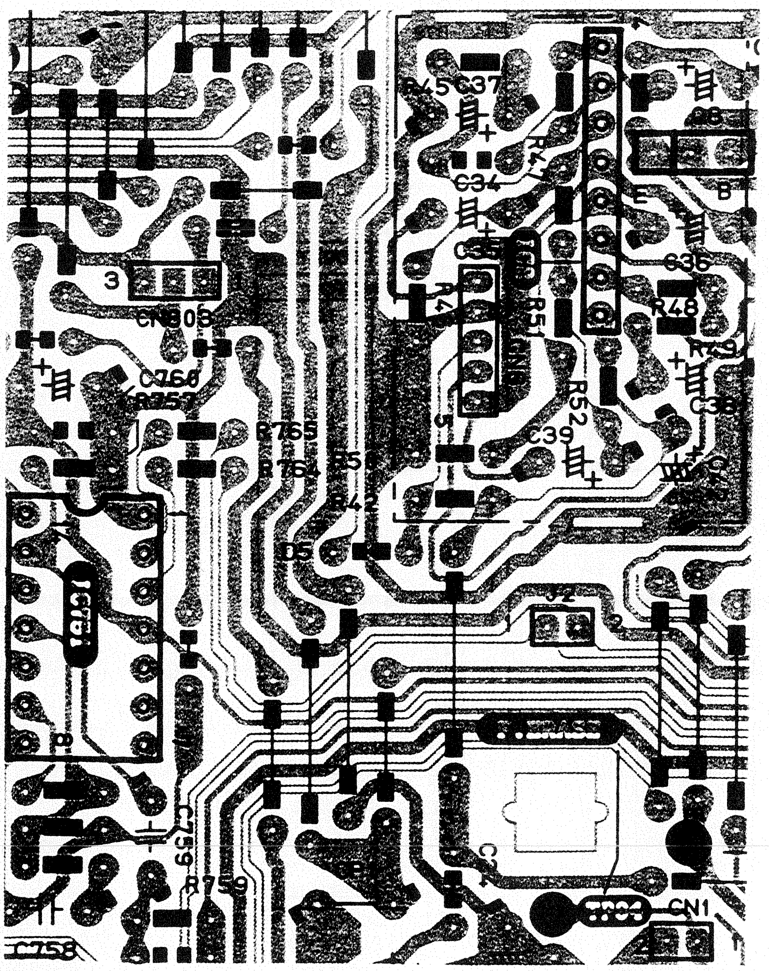
- MAIN board assembly is located in page 45, 46.



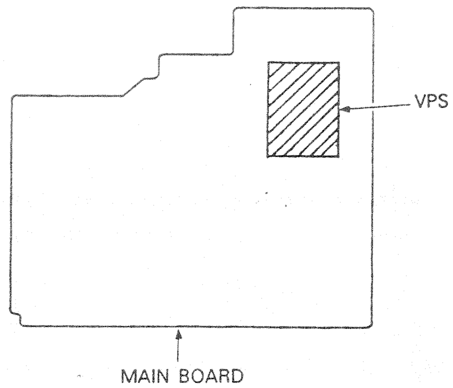
3.27 VPS SCHEMATIC DIAGRAM (EG)


03 MAIN (VPS)
IC751
C765 0.1/50
C760 0.01
From 03 MECHACON (MAIN) (Page 3-40)
UNSW 5V MP5
R757 1M
R758 820K
C758 0.1
R753 5.6K
R754 100K
R751 820K
R752 100
4.9
14 VDD
13 FBAS
12 IRES
11 VCO
10 PD1
9 PD2
8 T1
GND 1
SCL 2
SDA 3
CSO 4
VCS 5
DAVN 6
EHB 7
R765 270
R764 270
S DATA MP2
S CLK MP1
GND MP3
C759 0.033
R759 2K
C762 150P
VPT VIDEO MP4
IC751 SDA5642

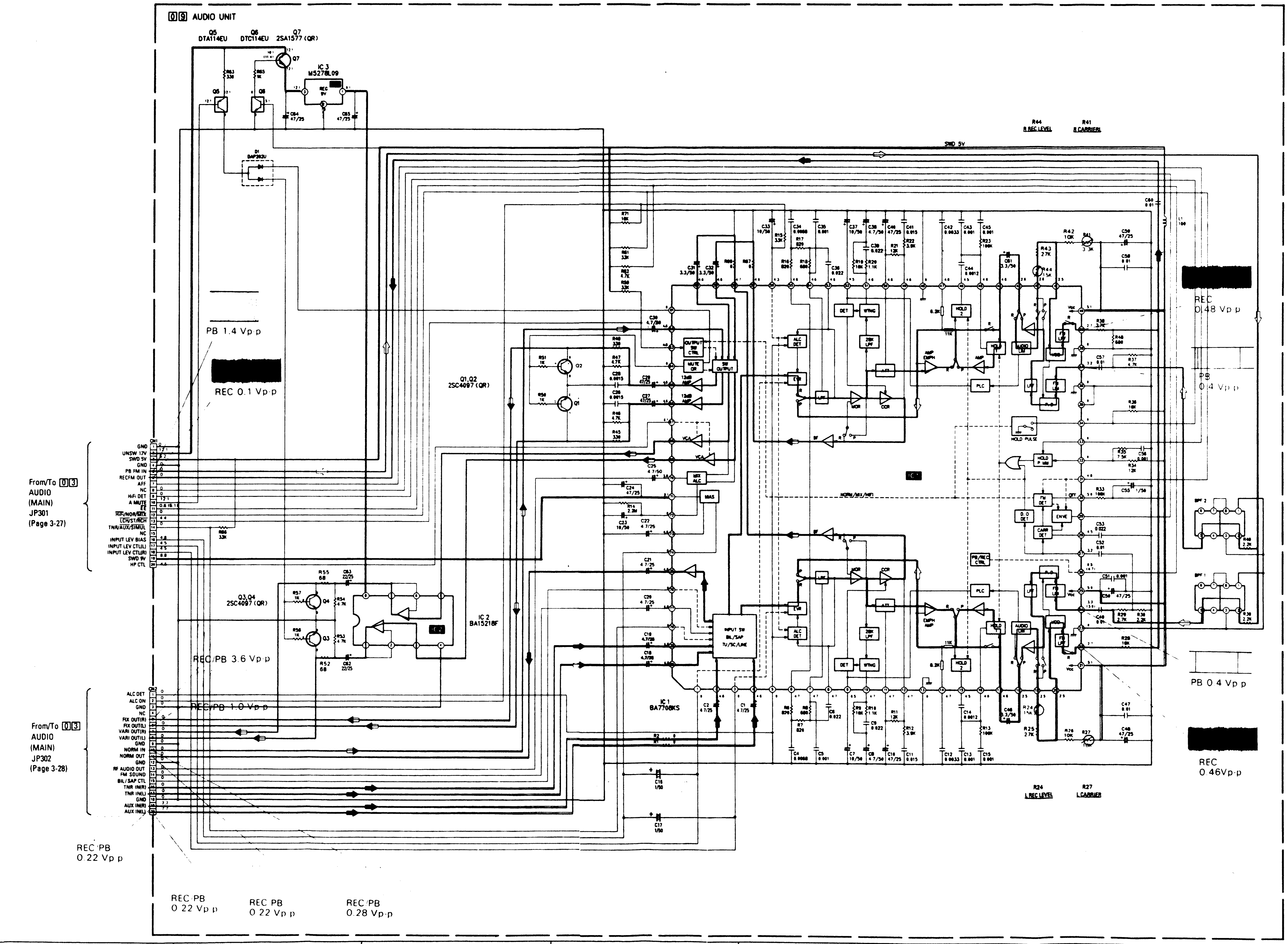
3.28 MAIN (VPS) CIRCUIT BOARD (EG)


C37
C34
C35
C36
R48
R49
C38
C39
R52
R51
CN803
C766
R757
R765
R764
R42
D5
IC751
C759
R759
C758
CN1
B
E

- MAIN board assembly is located in page 45, 46.


VPS
MAIN BOARD

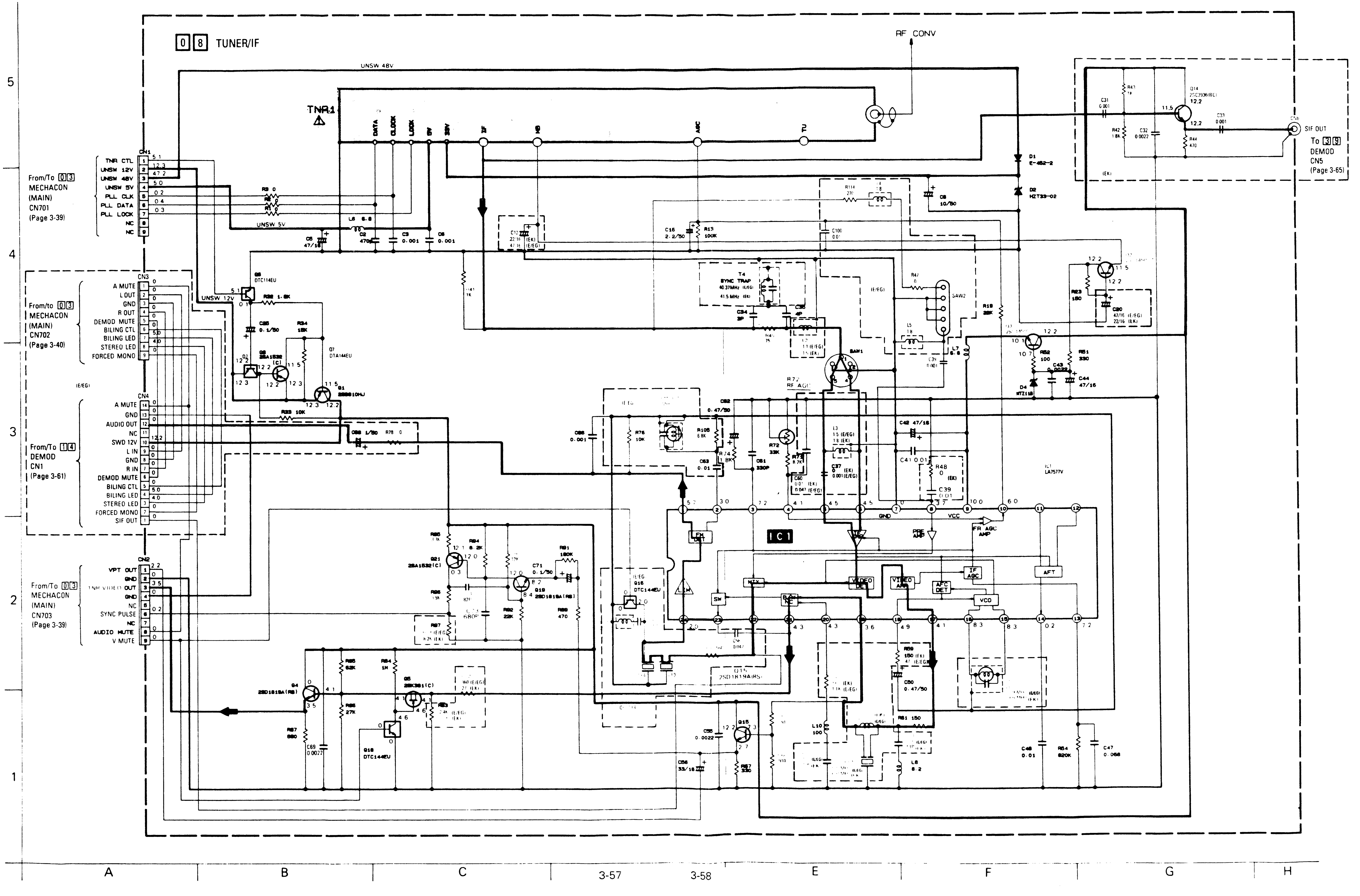
3.29 AUDIO UNIT SCHEMATIC DIAGRAM



03 AUDIO UNIT
Q5 DTA114EU
Q6 DTC114EU
Q7 2SA1577 (QR)
IC 3 M5278L09
D1 BAP262U
Q1,Q2 2SC4097 (QR)
Q3,Q4 2SC4097 (QR)
IC 2 BA15218F
IC 1 BA7706KS
R44 R REC LEVEL
R41 R CARRIER
R24 L REC LEVEL
R27 L CARRIER
SWD 5V
PB 1.4 Vp-p
REC 0.1 Vp-p
REC/PB 3.6 Vp-p
REC/PB 1.0 Vp-p
REC 0.48 Vp-p
PB 0.4 Vp-p
PB 0.4 Vp-p
REC 0.46Vp-p
REC/PB 0.22 Vp-p
REC/PB 0.22 Vp-p
REC/PB 0.22 Vp-p
REC/PB 0.28 Vp-p
From/To 03 AUDIO (MAIN) JP301 (Page 3-27)
CN1
GND
UNSW 12V
SWD 5V
GND
PB FM IN
RECFM OUT
AFF
NC
HiFi DET
A MUTE
EE
HiFi/NOR/MIX
LCH/ST/RCH
TNR/AUX/SIMUL
NC
INPUT LEV BIAS
INPUT LEV CTL(L)
INPUT LEV CTL(R)
SWD 9V
HP CTL
From/To 03 AUDIO (MAIN) JP302 (Page 3-28)
CN2
ALC DET
ALC ON
GND
NC
FIX OUT(R)
FIX OUT(L)
VARI OUT(R)
VARI OUT(L)
GND
NORM IN
NORM OUT
GND
RF AUDIO OUT
FM SOUND
BIL/SAP CTL
TNR IN(R)
TNR IN(L)
GND
AUX IN(R)
AUX IN(L)
OUTPUT SW CTRL
MUTE CIR
SW OUTPUT
12dB AMP
VCA
MIX ALC
BIAS
INPUT SW BIL/SAP TU/SC/LINE
ALC DET
EVR
LPF
NOR
DCR
BF
DET
WTNG
20K LPF
ATT
AMP EMPH
PLC
HOLD 2
HOLD
AUDIO LIM
F/V LPF
HOLD PULSE
HOLD P MM
FM DET
D.O DET
CARR DET
ENVE
PB/REC CTRL
VCO
NORM/MIX/HIFI
BPF 2
BPF 1

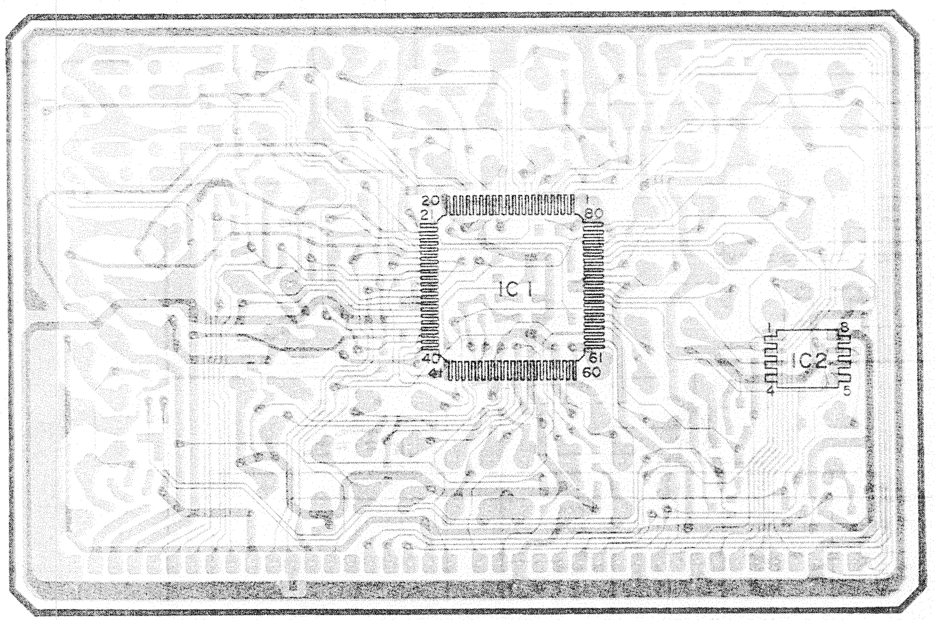
3.31 TUNER/IF SCHEMATIC DIAGRAM

NOTE: Voltages are DC-measured with a digital voltmeter during stop and tuner mode.

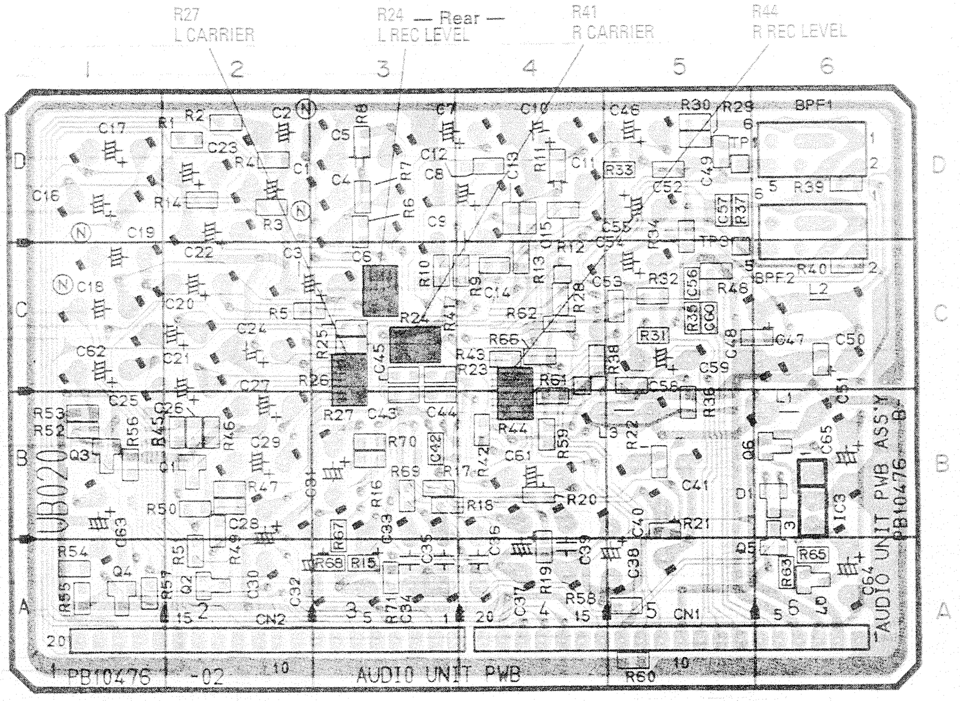

08 TUNER/IF
RF CONV
UNSW 48V
TNR1
DATA
CLOCK
LOCK
5V
33V
IF
MS
AFC
TU
SIF OUT
To 39 DEMOD CN5 (Page 3-65)
Q14 2SC3936(BC)
(EK)
D1 E-452-2
D2 HZT33-02
CN1
TNR CTL
UNSW 12V
UNSW 48V
UNSW 5V
PLL CLK
PLL DATA
PLL LOCK
NC
From/To 03 MECHACON (MAIN) CN701 (Page 3-39)
UNSW 5V
L6 6.8
C5 47/16
C2 470p
C3 0.001
C6 0.001
C16 2.2/50
R13 100K
C100 0.01
C8 10/50
CN3
A MUTE
L OUT
GND
R OUT
DEMOD MUTE
BILING CTL
BILING LED
STEREO LED
FORCED MONO
From/to 03 MECHACON (MAIN) CN702 (Page 3-40)
Q8 DTC114EU
UNSW 12V
R32 1.5K
C25 0.1/50
R34 15K
Q3 2SA1532(C)
Q7 DTA144EU
Q1 2SB810HJ
R33 10K
(E/EG)
CN4
A MUTE
GND
AUDIO OUT
NC
SWD 12V
L IN
GND
R IN
DEMOD MUTE
BILING CTL
BILING LED
STEREO LED
FORCED MONO
SIF OUT
From/To 14 DEMOD CN1 (Page 3-61)
T4 SYNC TRAP 40.37MHz (E/EG) 41.5MHz (EK)
C34 3P
C36 4P
SAW1
SAW2
R47
L5
L7 6.8
R18 28K
R23 150
C20 47/16 (E/EG) 22/16 (EK)
R52 100
R51 330
C43 0.0022
C44 47/16
D4 MTZ11B
R72 RF AGC
C82 0.47/50
C86 0.001
R76 10K
R105 6.8K
R74 1.8K
C63 0.01
C61 330P
R72 33K
C60
C37
L3
C42 47/16
C41 0.01
R48 0
C39 0.01
IC1 LA7577V
GND
VCC
FM DET
IC1
PRE AMP
RF AGC AMP
IF AGC
AFT
VIDEO DET
VIDEO AMP
AFC DET
VCO
MIX
SW
BAL NC
LIM
CN2
VPT OUT
GND
TNR VIDEO OUT
GND
NC
SYNC PULSE
NC
AUDIO MUTE
V MUTE
From/To 03 MECHACON (MAIN) CN703 (Page 3-39)
Q21 2SA1532(C)
R94 8.2K
C71 0.1/50
R91 150K
Q19 2SD1819A(RS)
R92 22K
R89 470
R97
Q16 DTC144EU
Q15 2SD1819A(RS)
Q4 2SD1819A(RS)
R85 82K
R84 1M
Q5 2SK381(C)
R86 27K
R87 680
C69 0.0022
Q18 DTC144EU
C55 0.0022
Q16
C56 33/16
R57 330
L10 100
R59 150 (EK) 47 (E/EG)
C50 0.47/50
R61 150
L8 8.2
C46 0.01
R64 820K
C47 0.068
5
4
3
2
1
A
B
C
E
F
G
H

3.30 AUDIO UNIT CIRCUIT BOARD

— Front —



IC1
IC2
20
21
80
40
41
61
60



R27
L CARRIER
R24
L REC LEVEL
— Rear —
R41
R CARRIER
R44
R REC LEVEL
1
2
3
4
5
6
D
C
B
A
BPF1
BPF2
IC3
CN1
CN2
PB10476 -02
AUDIO UNIT PWB
AUDIO UNIT PWB ASSY
PB10476 B
UB020

* Address of chip parts
1D
└─Address

REF No.	LOCATION
TRANSISTOR	
Q1	2B
Q2	2A
Q3	1A
Q4	1A
Q5	5A
Q6	5B
Q7	6A
DIODE	
D1	5B
RESISTOR	
R1	2D
R2	2D
R6	3D
R7	3D
R8	3D
R9	4C
R10	3C

REF No.	LOCATION
RESISTOR	
R11	4D
R12	4C
R13	4C
R14	2D
R15	3A
R16	3B
R17	3B
R18	4B
R19	4A
R20	4B
R21	5B
R22	5B
R23	4C
R24	3C
R25	3C
R26	3C
R27	3B
R28	4C
R29	5D
R30	5D
R33	5D
R34	5D
R35	5C

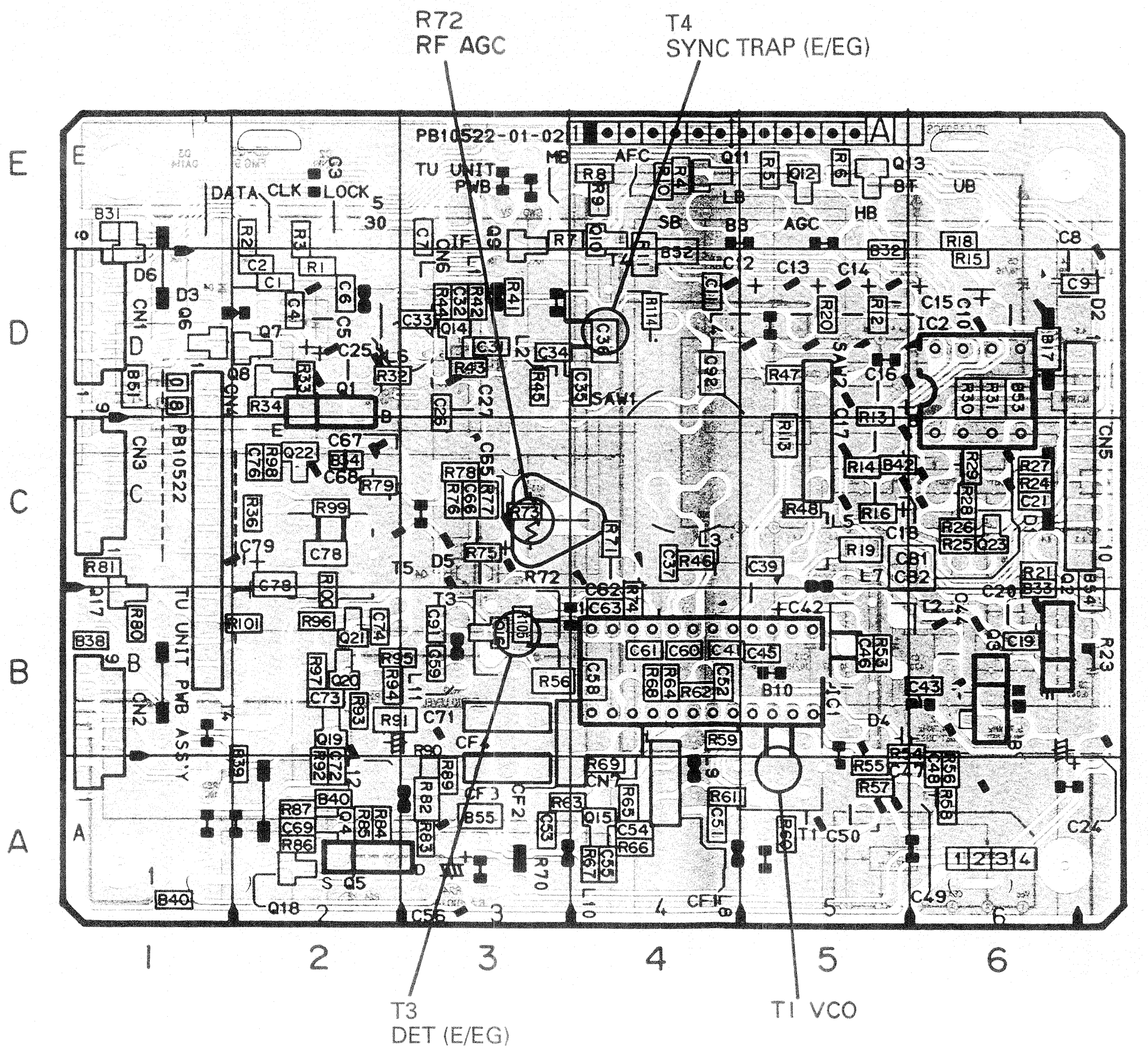
REF No.	LOCATION
RESISTOR	
R36	5B
R37	5D
R38	5C
R39	6D
R40	6C
R41	3C
R42	4B
R43	4C
R44	4B
R45	1B
R46	2B
R47	2B
R48	5C
R49	2A
R50	2B
R51	2A
R52	1B
R53	1B
R54	1A
R55	1A
R56	1B
R57	1A
R59	4B

REF No.	LOCATION
RESISTOR	
R61	4C
R62	4C
R63	6A
R65	6A
R66	4C
R67	3A
R69	3B
R71	3A

REF No.	LOCATION
CAPACITOR	
C12	3D
C13	4D
C14	4C
C15	4D
C26	2B
C28	2B
C42	3B
C43	3B
C44	3B
C45	3C
C47	6C
C49	5D
C51	6C
C52	5D
C53	5C
C56	5C
C57	5D
C58	5C
C60	5C

NOTE: Definition of the surface and the back of circuit board diagrams
Front : Side on which discrete parts are assembled
Rear : Side on which chip parts are assembled

3.32 TUNER/IF CIRCUIT BOARD


R72
RF AGC
T4
SYNC TRAP (E/EG)
PB10522-01-02
TU UNIT PWB
TU UNIT PWB ASS'Y
PB10522
E
D
C
B
A
1
2
3
4
5
6
T3
DET (E/EG)
T1 VCO

- Address of chip parts

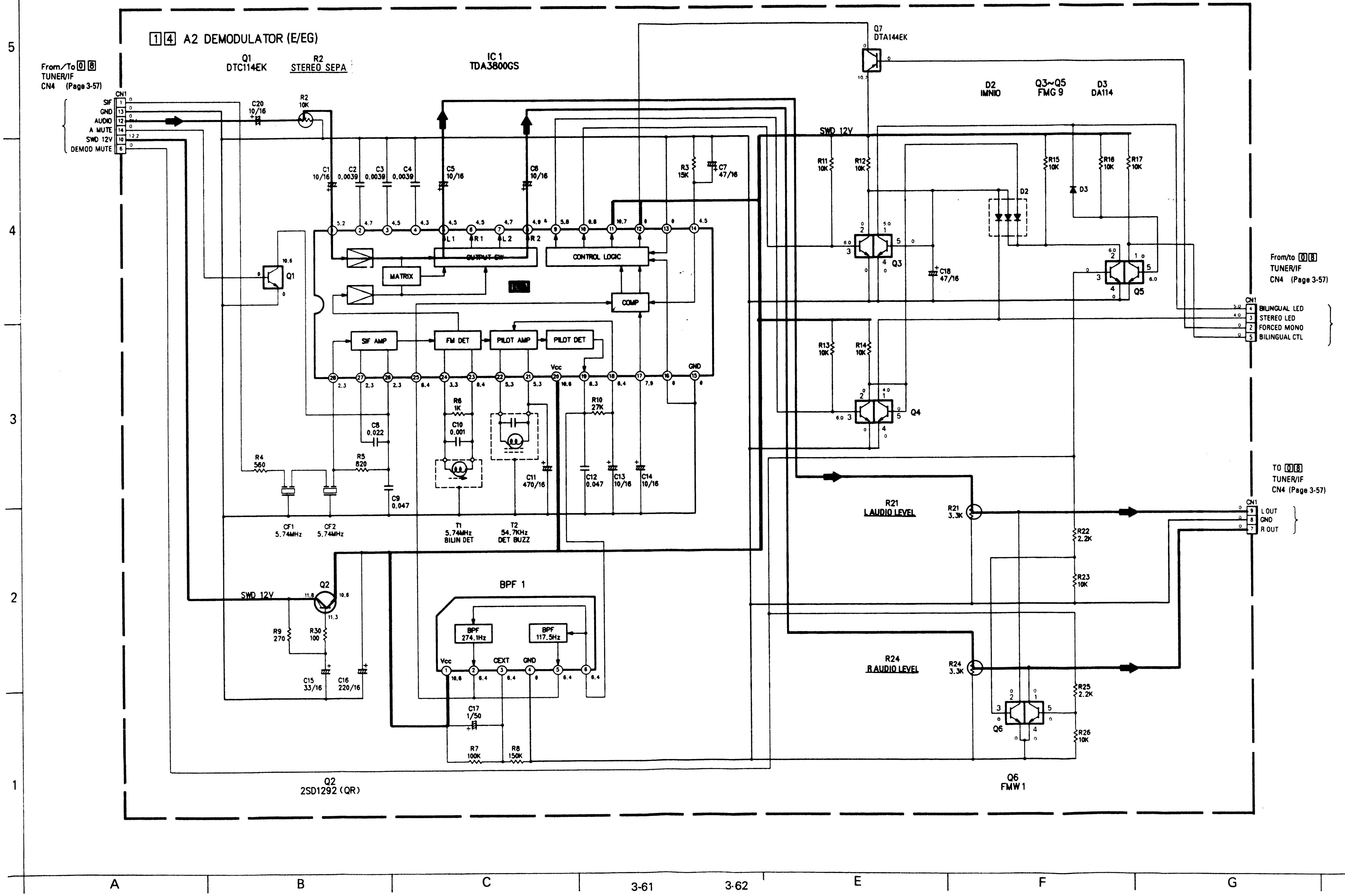
1D
Address

REF No.	LOCATION
TRANSISTOR	
Q6	1D
Q7	2D
Q8	2D
Q14	3D
Q15	4A
Q16	3B
Q18	2A
Q19	2B
Q21	2B
RESISTOR	
R1	2D
R2	2E
R3	2E
R13	5D
R19	5C
R32	2D
R33	2D
R34	2D
R41	3D
R42	3D
R43	3D
R44	3D
R45	3D
R47	5D
R48	5C
R54	5B
R59	4B
R61	4A
R63	3A
R65	4A
R66	4A
R67	4A
R69	4A
R71	4C
R74	4B
R76	3C
R78	3C
R82	3A
R83	3A
R84	2A
R85	2A
R86	2A
R87	2A
R89	3A
R91	2B
R92	2A
R93	2B
R94	2B
R95	2B
R96	2B
R97	2B
R105	3B
R114	4D

REF No.	LOCATION
CAPACITOR	
C2	2D
C6	2D
C31	3D
C32	3D
C33	3D
C34	3D
C35	4D
C37	4C
C39	5C
C41	4B
C43	6B
C48	6A
C51	4A
C53	3A
C55	4A
C58	4B
C59	3B
C60	4B
C61	4B
C63	4B
C69	2A
C73	2B
C74	2B

3.33 A2 DEMODULATOR SCHEMATIC DIAGRAM (E/EG)

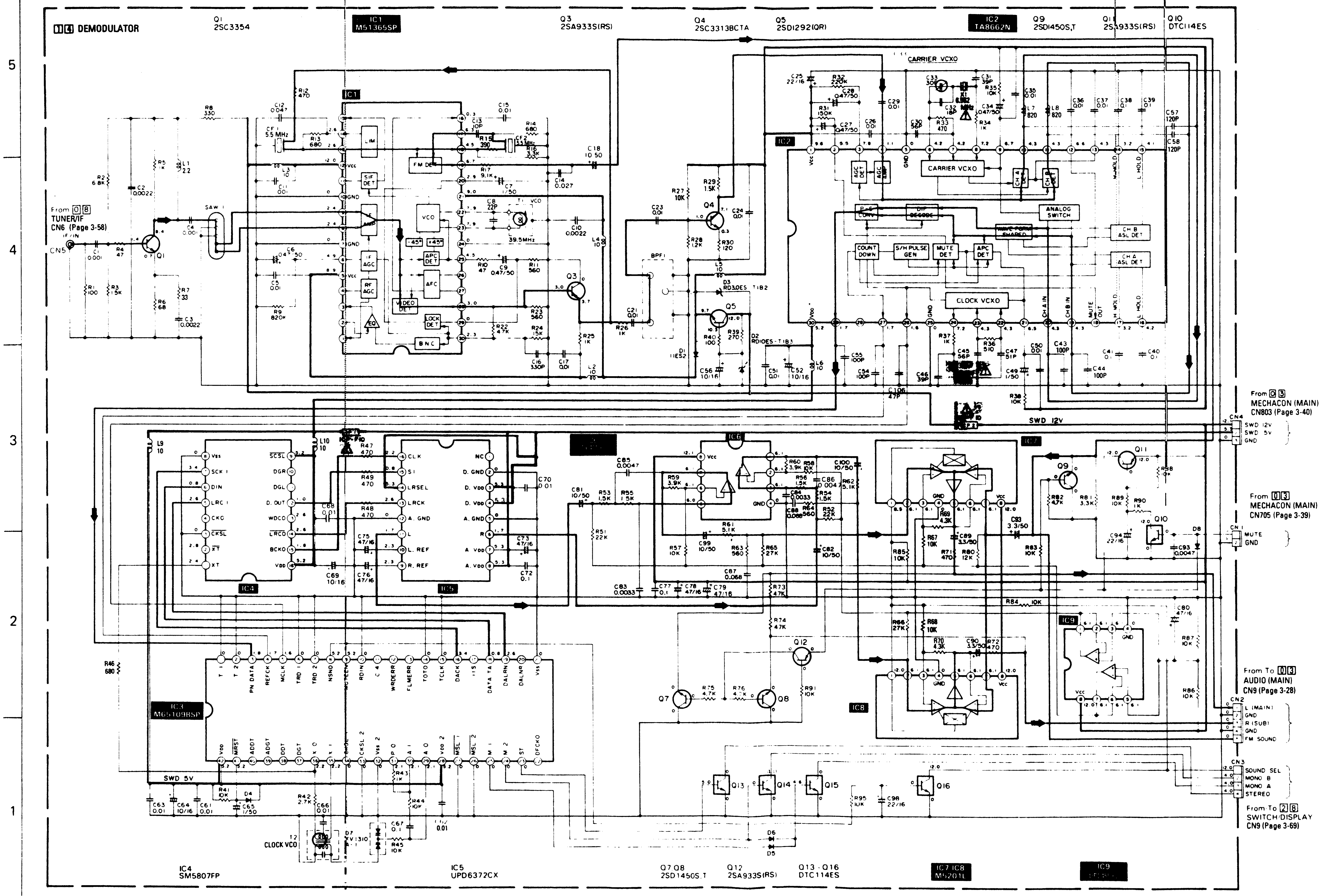
NOTE: Voltages are DC-measured with a digital voltmeter during stop and tuner mode.



1 4 A2 DEMODULATOR (E/EG)
Q1 DTC114EK
R2 STEREO SEPA
IC 1 TDA3800GS
Q7 DTA144EK
D2 IMN10
Q3~Q5 FMG 9
D3 DA114
From/To 0 8 TUNER/IF CN4 (Page 3-57)
CN1
SIF
GND
AUDIO
A MUTE
SWD 12V
DEMOD MUTE
C20 10/16
R2 10K
C1 10/16
C2 0.0039
C3 0.0039
C4 0.0039
C5 10/16
C6 10/16
R3 15K
C7 47/16
SWD 12V
R11 10K
R12 10K
R15 10K
R16 10K
R17 10K
D2
D3
Q3
Q5
C18 47/16
OUTPUT SW
CONTROL LOGIC
MATRIX
COMP
SIF AMP
FM DET
PILOT AMP
PILOT DET
Vcc
GND
L 1
R 1
L 2
R 2
R13 10K
R14 10K
Q4
R6 1K
C10 0.001
C8 0.022
R4 560
R5 820
C9 0.047
R10 27K
C11 470/16
C12 0.047
C13 10/16
C14 10/16
CF1 5.74MHz
CF2 5.74MHz
T1 5.74MHz BILIN DET
T2 54.7KHz DET BUZZ
From/to 0 8 TUNER/IF CN4 (Page 3-57)
CN1
BILINGUAL LED
STEREO LED
FORCED MONO
BILINGUAL CTL
TO 0 8 TUNER/IF CN4 (Page 3-57)
CN1
L OUT
GND
R OUT
R21 L AUDIO LEVEL
R21 3.3K
R22 2.2K
R23 10K
R24 R AUDIO LEVEL
R24 3.3K
R25 2.2K
R26 10K
Q6
Q6 FMW 1
Q2
SWD 12V
R9 270
R30 100
C15 33/16
C16 220/16
BPF 1
BPF 274.1Hz
BPF 117.5Hz
Vcc
CEXT
GND
C17 1/50
R7 100K
R8 150K
Q2 2SD1292 (QR)
5
4
3
2
1
A
B
C
E
F
G
H

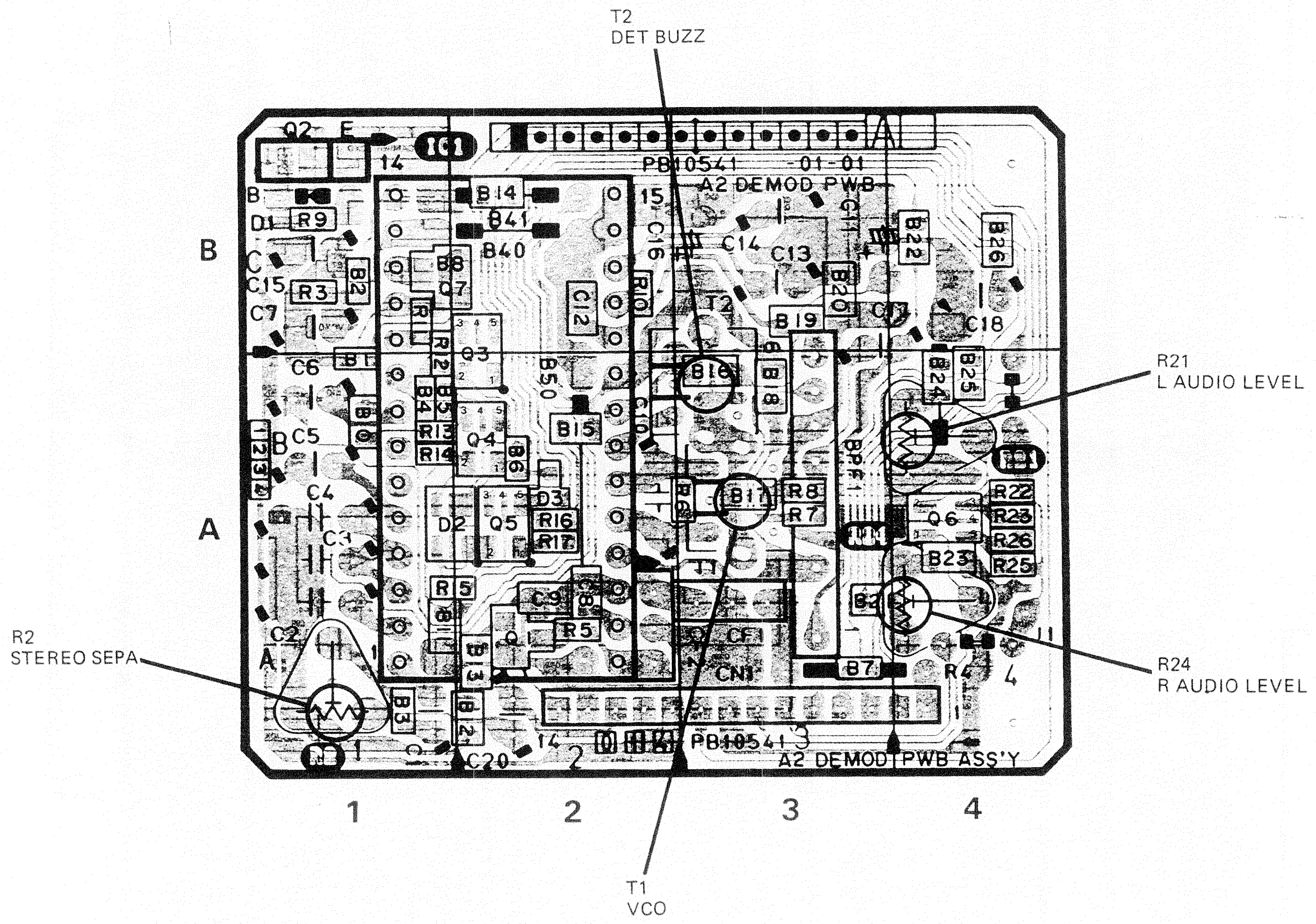
3.35 DEMODULATOR SCHEMATIC DIAGRAM (EK)

NOTE: Voltages are DC-measured with a digital voltmeter during stop and tuner mode.

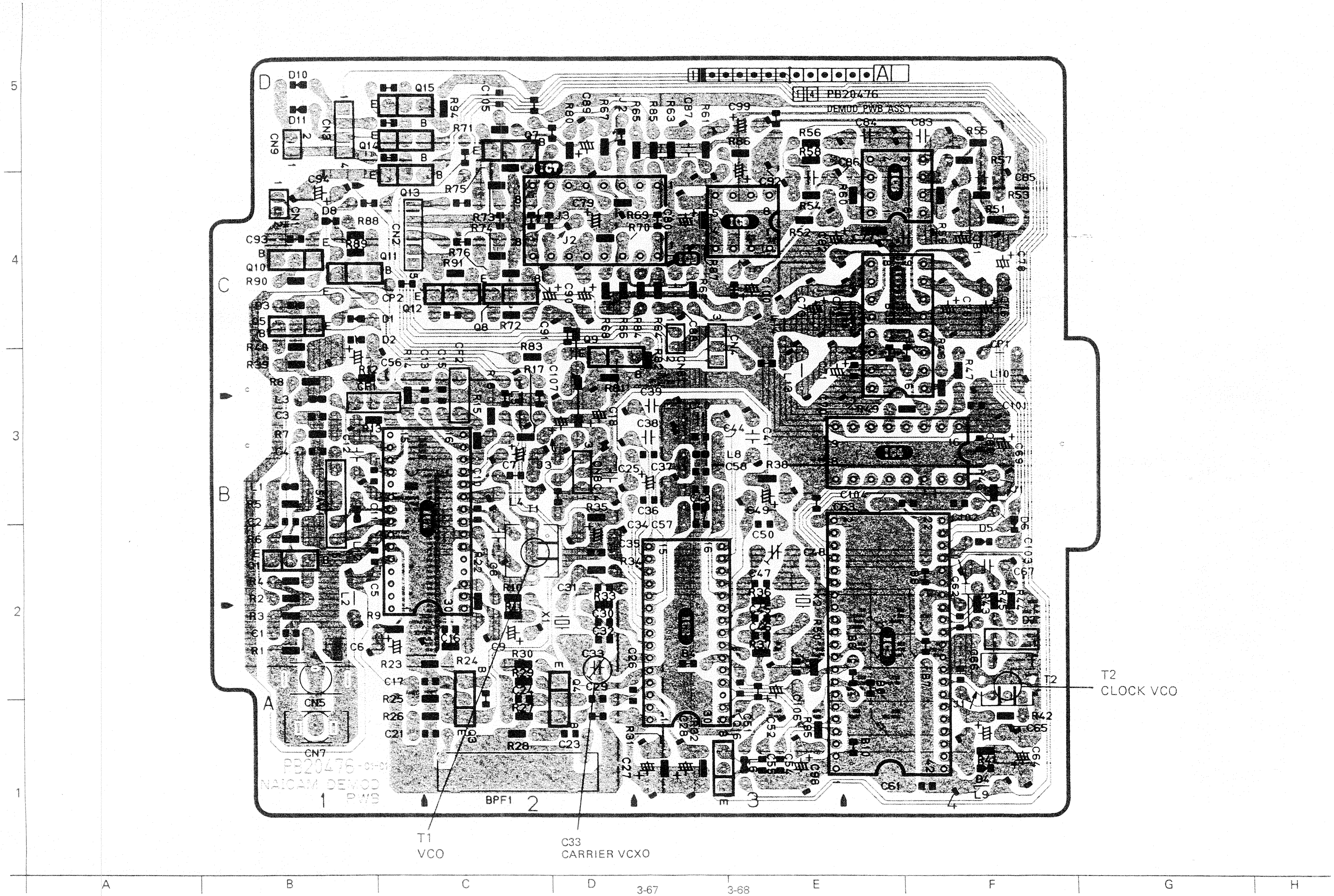


5
4
3
2
1
0 4 DEMODULATOR
Q1 2SC3354
IC1 M51365SP
Q3 2SA933S(RS)
Q4 2SC3313BCTA
Q5 2SD1292(QR)
IC2 TA8662N
Q9 2SD1450S,T
Q11 2SA933S(RS)
Q10 DTC114ES
From 0 8 TUNER/IF CN6 (Page 3-58)
CN5
SAW 1
CF1 5.5 MHz
CF2 5.5MHz
LIM
FM DET
SIF DET
IF AMP
VCO
-45°
+45°
APC DET
IF AGC
RF AGC
AFC
VIDEO DET
LOCK DET
EQ
BNC
39.5MHz
BPF1
CARRIER VCXO
AGC DET
CARRIER VCXO
ANALOG SWITCH
CH B ASL DET
CH A ASL DET
COUNT DOWN
S/H PULSE GEN
MUTE DET
APC DET
CLOCK VCXO
SWD 12V
From 0 3 MECHACON (MAIN) CN803 (Page 3-40)
CN4
SWD 12V
SWD 5V
GND
IC4
IC5
IC6
IC7
IC8
IC9
From 0 3 MECHACON (MAIN) CN705 (Page 3-39)
CN1
MUTE
GND
From To 0 3 AUDIO (MAIN) CN9 (Page 3-28)
CN2
L (MAIN)
GND
R (SUB)
GND
FM SOUND
CN3
SOUND SEL
MONO B
MONO A
STEREO
From To 2 6 SWITCH/DISPLAY CN9 (Page 3-69)
IC3 M65109BSP
SWD 5V
X2 CLOCK VCO
Q7
Q8
Q12
Q13
Q14
Q15
Q16
IC4 SM5807FP
IC5 UPD6372CX
Q7.Q8 2SD1450S,T
Q12 2SA933S(RS)
Q13-Q16 DTC114ES
IC7.IC8 M5201L
IC9
A
B
C
D
E
F
G
H

3.34 A2 DEMODULATOR CIRCUIT BOARD (E/EG)

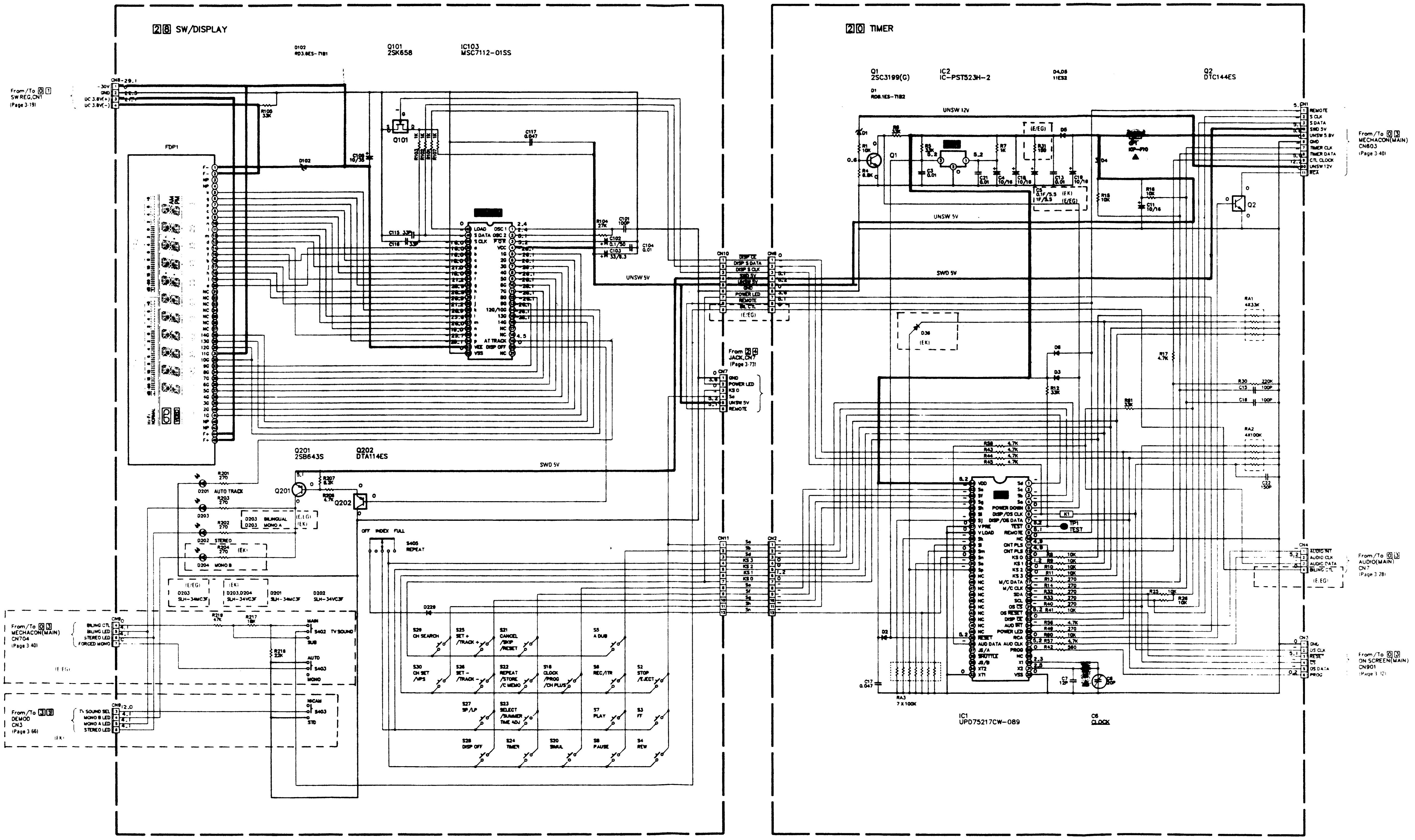

T2
DET BUZZ
R21
L AUDIO LEVEL
R24
R AUDIO LEVEL
R2
STEREO SEPA
T1
VCO
B
A
1
2
3
4
PB10541 -01-01
A2 DEMOD PWB
PB10541
A2 DEMOD PWB ASS'Y
Q2
Q3
Q4
Q5
Q6
Q7
D1
D2
D3
R3
R5
R6
R7
R8
R9
R10
R12
R13
R14
R16
R17
R22
R23
R25
R26
C2
C3
C4
C5
C6
C7
C8
C9
C12
C13
C14
C15
C16
C18
C20
CN1
CF
BPF1
B14
B15
B16
B17
B18
B19
B20
B22
B23
B24
B25
B26
B40
B41
B50
B7

REF No.	LOCATION
TRANSISTOR	
Q1	A-2
Q3	A-2
Q4	A-2
Q5	A-2
Q6	A-4
Q7	B-1
DIODE	
D2	A-1
D3	A-2
RESISTOR	
R3	B-1
R5	A-2
R6	A-3
R7	A-3
R8	A-3
R9	B-1
R10	B-2
R11	B-1
R12	A-1
R13	A-1
R14	A-1
R15	A-1
R16	A-2
R17	A-2
R22	A-4
R23	A-4
R25	A-4
R26	A-4
CAPACITOR	
C8	A-2
C9	A-2
C12	B-2


PB20476
DEMOD PWB ASSY
PB20476
NAICAM DEMOD PWB
BPF1
CN7
CN5
T1
VCO
C33
CARRIER VCXO
T2
CLOCK VCO
1
2
3
4
5
A
B
C
D
E
F
G
H

3.37 TIMER AND DISPLAY/SWITCH SCHEMATIC DIAGRAM

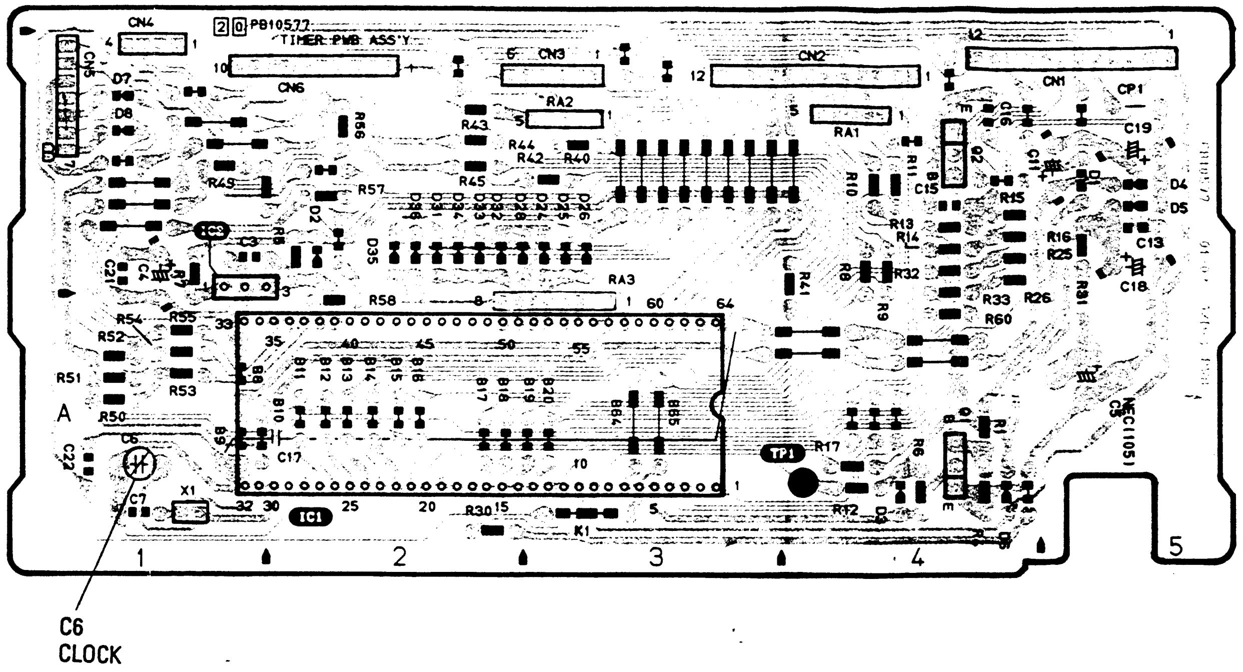
NOTE: Voltages are DC-measured with a digital voltmeter during stop and tuner mode.



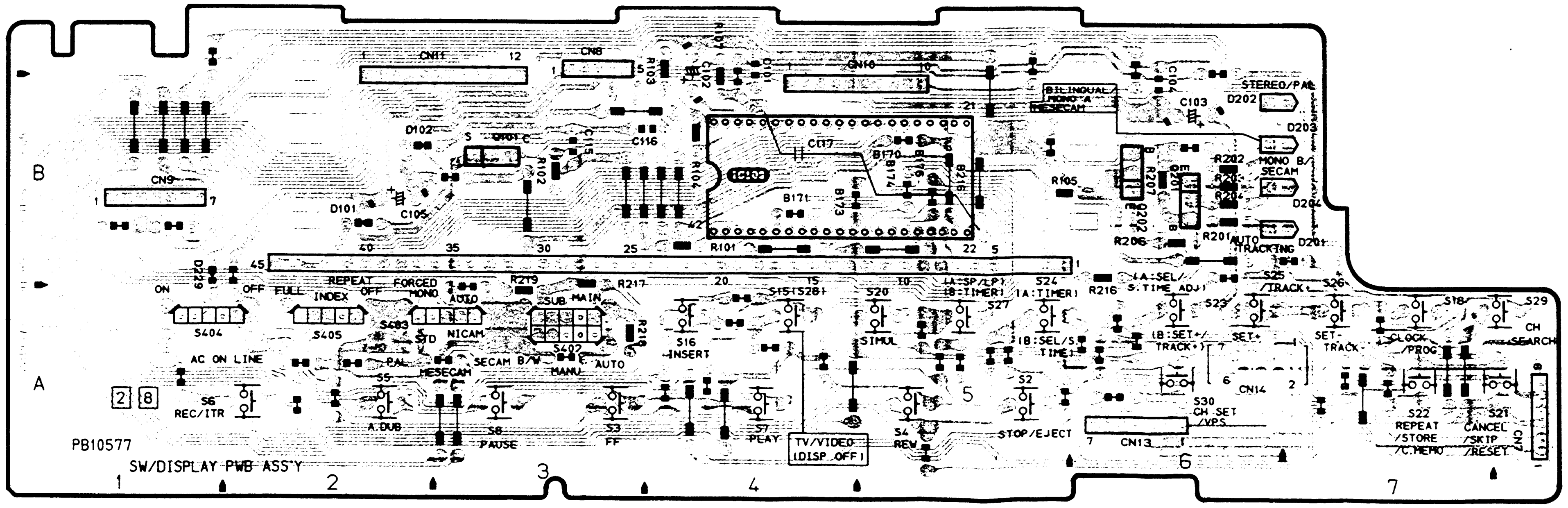
28 SW/DISPLAY
D102
RD3.6ES-T181
Q101
2SK658
IC103
MSC7112-01SS
From/To 01
SW REG.CN1
(Page 3-19)
FDP1
C117
0.047
R104
27K
C101
100P
C102
0.1/50
C103
33/6.3
C104
0.01
UNSW 5V
CN10
DISP CE
DISP S DATA
DISP S CLK
SWD 5V
UNSW 5V
GND
POWER LED
REMOTE
BL CTL
(E/EG)
From 24
JACK,CN7
(Page 3-73)
CN7
GND
POWER LED
KS 0
Sa
UNSW 5V
REMOTE
Q201
2SB643S
Q202
DTA114ES
SWD 5V
D201 AUTO TRACK
D203 BILINGUAL
D203 MONO A
D202 STEREO
D204 MONO B
D203 SLH-34MC3F
D203,D204 SLH-34VC3F
D201 SLH-34MC3F
D202 SLH-34VC3F
OFF INDEX FULL
S405 REPEAT
D229
S29 CH SEARCH
S25 SET + /TRACK +
S21 CANCEL /SKIP /RESET
S5 A DUB
S30 CH SET /VPS
S26 SET - /TRACK -
S22 REPEAT /STORE /C MEMO
S18 CLOCK /PROG /CH PLUS
S6 REC/TR
S2 STOP /EJECT
S27 SP/LP
S23 SELECT /SUMMER TIME ADJ
S7 PLAY
S3 FF
S28 DISP OFF
S24 TIMER
S20 SIMUL
S8 PAUSE
S4 REW
From/To 03
MECHACON(MAIN)
CN704
(Page 3-40)
BILING CTL
BILING LED
STEREO LED
FORCED MONO
(E/EG)
From/To 39
DEMOD
CN3
(Page 3-66)
TV SOUND SEL
MONO B LED
MONO A LED
STEREO LED
(EK)
R218 4.7K
R217 18K
R216 22K
MAIN
S402 TV SOUND
SUB
AUTO
S403
MONO
NICAM
S403
STD
CN11
CN2
20 TIMER
Q1
2SC3199(G)
IC2
IC-PST523H-2
D4,D5
11ES2
D1
RD8.1ES-T1B2
Q2
DTC144ES
UNSW 12V
UNSW 5V
SWD 5V
CN1
REMOTE
S CLK
S DATA
SWD 5V
UNSW 5.8V
GND
TIMER CLK
TIMER DATA
CTL CLOCK
UNSW 12V
RCA
From/To 03
MECHACON(MAIN)
CN603
(Page 3-40)
RA1
4X33K
D36
(EK)
R30 220K
C15 100P
C16 100P
RA2
4X100K
C22
150P
TP1
TEST
CN4
AUDIO INT
AUDIO CLK
AUDIO DATA
BILING CTL
(E/EG)
From/To 03
AUDIO(MAIN)
CN7
(Page 3-28)
CN3
OS CLK
RESET
OS DATA
PROG
From/To 03
ON SCREEN(MAIN)
CN901
(Page 3-12)
RA3
7 X 100K
C17
0.047
IC1
UPD75217CW-089
C6
CLOCK
POWER DOWN
DISP/OS CLK
DISP/OS DATA
V LOAD
REMOTE
CNT PLS
M/C DATA
M/C CLK
OS RESET
DISP CE
AUD INT
POWER LED
AUD DATA
AUD CLK
SHUTTLE
A
B
C
D
E
F
G
H
1
2
3
4
5
6

3.38 TIMER AND DISPLAY/SWITCH CIRCUIT BOARDS

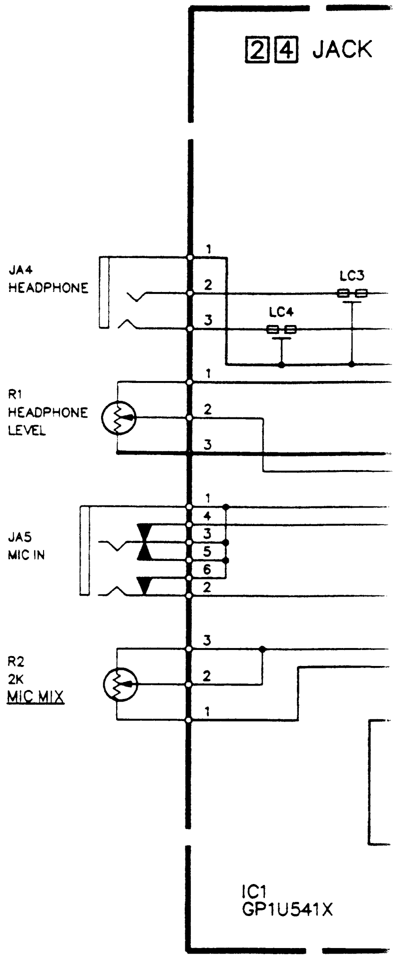
— TIMER —


2 0 PB10577
TIMER PWB ASS'Y
CN4
CN5
CN6
CN3
CN2
CN1
CP1
RA1
RA2
RA3
IC1
IC2
TP1
X1
K1
C6
CLOCK
NEC1105
A
1
2
3
4
5

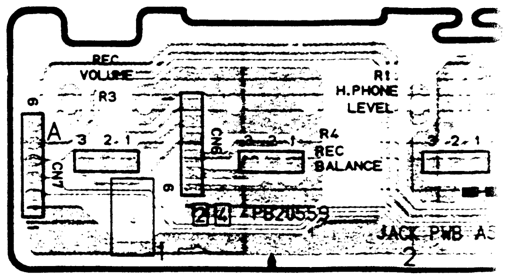
— DISPLAY/SWITCH —


PB10577
SW/DISPLAY PWB ASS'Y
2 8
CN11
CN8
CN10
CN9
CN13
CN14
CN7
IC101
STEREO/PAL
BIL.INGUAL/MONO A/SECAM
MONO B/SECAM
AUTO TRACKING
D202
D203
D204
D201
S404
S405
S403
S402
ON
OFF
FULL
INDEX
REPEAT
FORCED MONO
AUTO
NICAM
STD
PAL
MESECAM
SECAM B/W
SUB
MAIN
MANU
AUTO
AC ON LINE
S6 REC/ITR
S5 A.DUB
S8 PAUSE
S3 FF
S7 PLAY
S16 INSERT
S15 (S28)
S20 SIMUL
S4 REW
TV/VIDEO (DISP OFF)
S2 STOP/EJECT
S24
1A:SP/LP 1B:TIMER
S27
1A:TIMER
1B:SEL/S.TIME
1A:SEL/S.TIME ADJ
1B:SET+/TRACK+
S23
S25 /TRACK-
S26
SET+
SET- TRACK
S30 CH SET /VPS
CLOCK /PROG
S22 REPEAT /STORE /C.MEMO
S21 CANCEL /SKIP /RESET
S18
S29 CH SEARCH
A
B
1
2
3
4
5
6
7

3.39 JACK SCHEMATIC DIAGRA

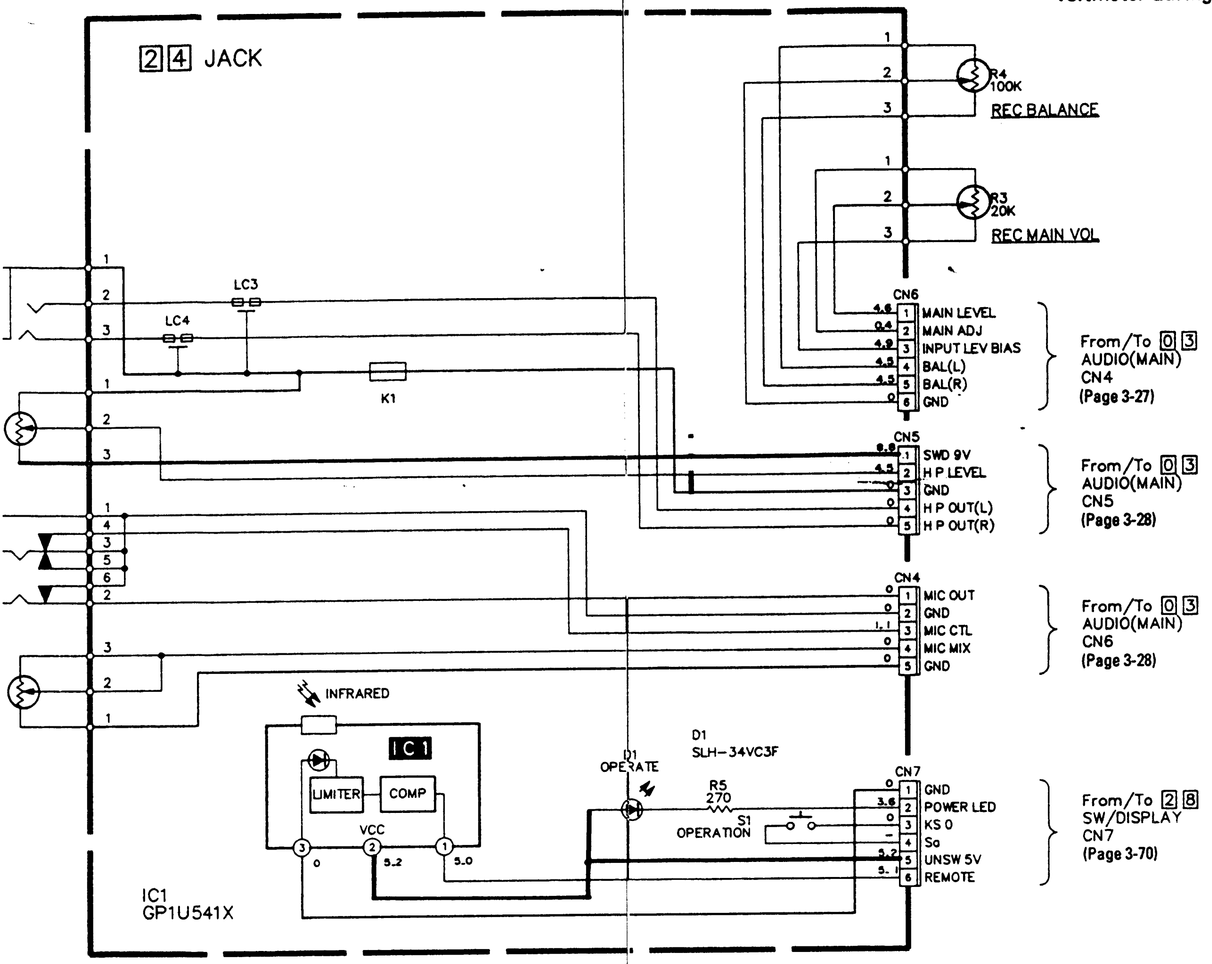

2 4 JACK
JA4 HEADPHONE
LC3
LC4
R1 HEADPHONE LEVEL
JA5 MIC IN
R2 2K MIC MIX
IC1 GP1U541X

3.40 JACK CIRCUIT BOARD


REC VOLUME
R3
R1 H.PHONE LEVEL
R4 REC BALANCE
CN6
CN7
A
2 4 PB20559
JACK PWB A
1
2

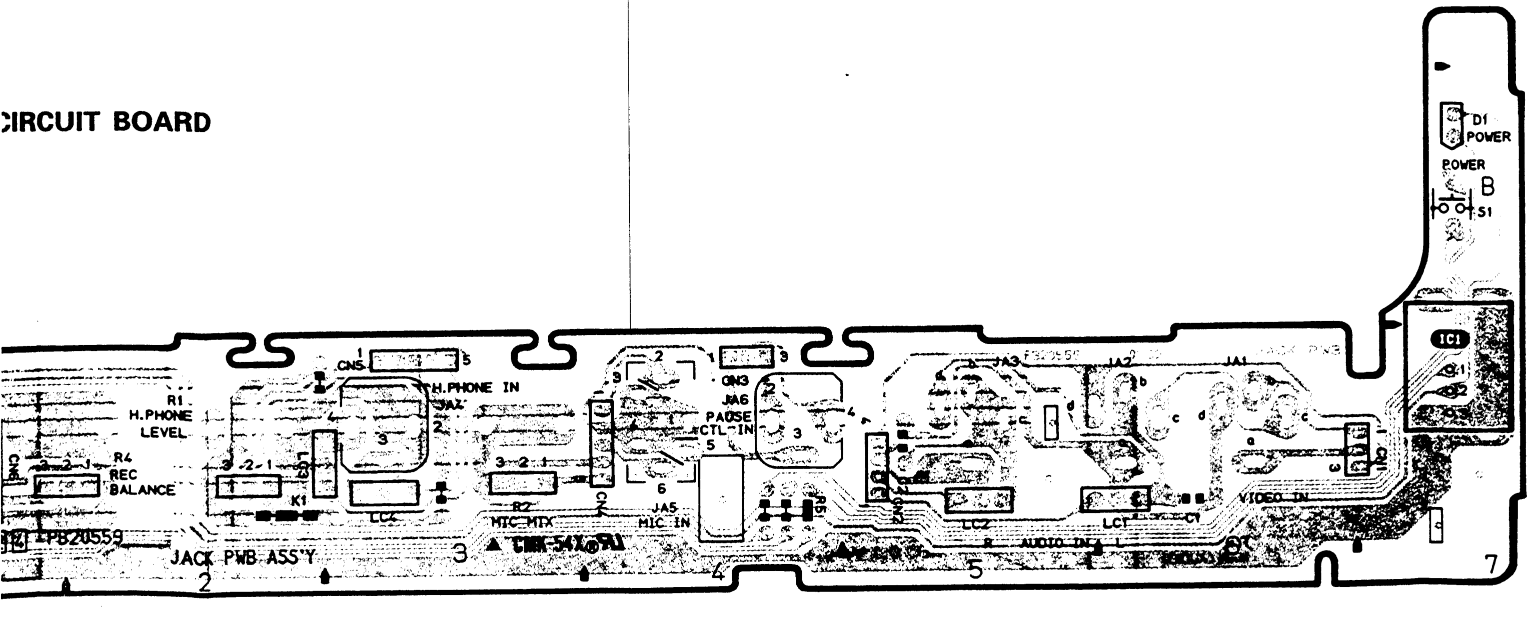
CHEMATIC DIAGRAM

NOTE: Voltages are DC-measured with a digital voltmeter during stop and tuner mode.



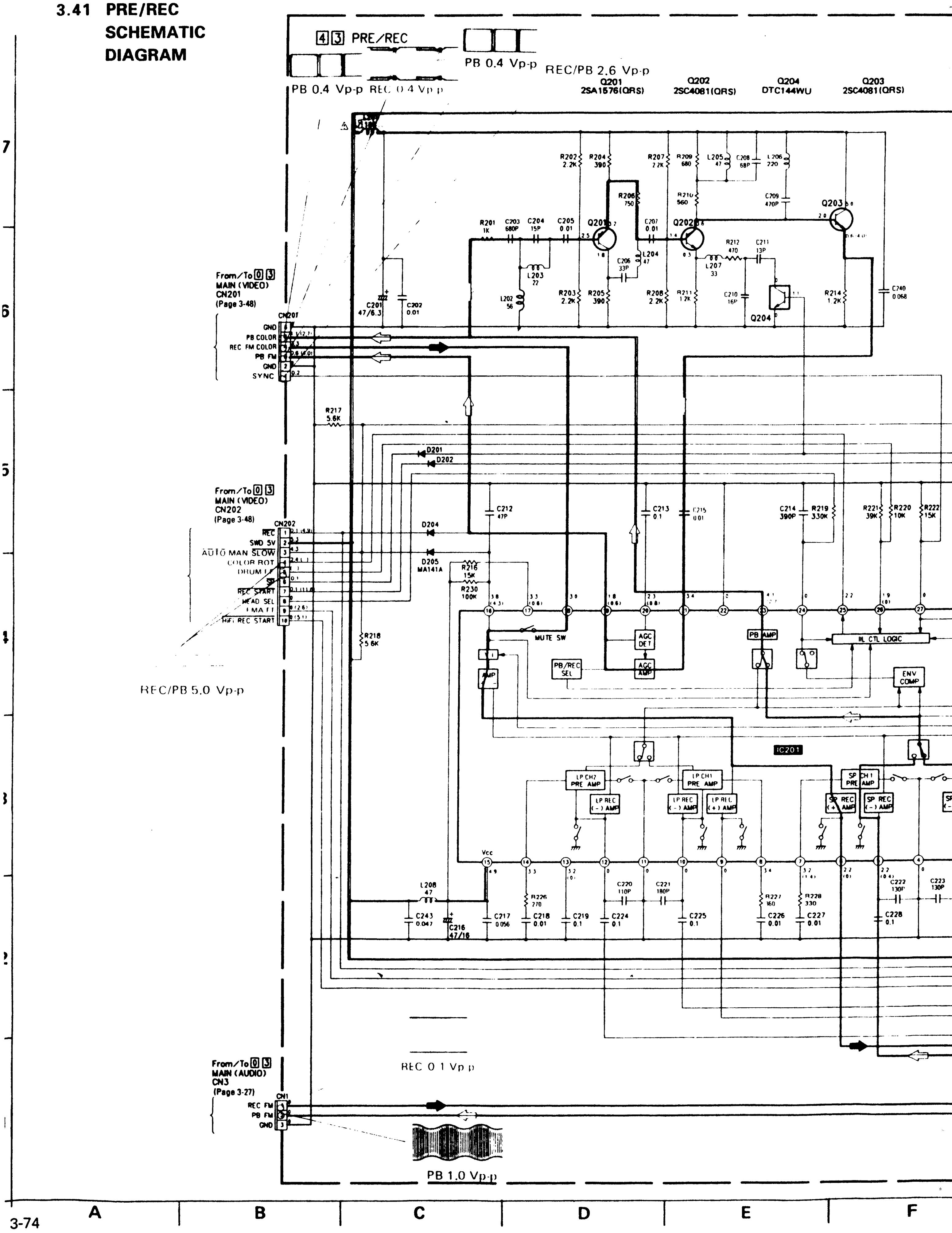
24 JACK
R4 100K
REC BALANCE
R3 20K
REC MAIN VOL
LC3
LC4
K1
CN6
MAIN LEVEL
MAIN ADJ
INPUT LEV BIAS
BAL(L)
BAL(R)
GND
From/To 03 AUDIO(MAIN) CN4 (Page 3-27)
CN5
SWD 9V
H P LEVEL
GND
H P OUT(L)
H P OUT(R)
From/To 03 AUDIO(MAIN) CN5 (Page 3-28)
CN4
MIC OUT
GND
MIC CTL
MIC MIX
GND
From/To 03 AUDIO(MAIN) CN6 (Page 3-28)
INFRARED
IC1
LIMITER
COMP
VCC
D1 OPERATE
D1 SLH-34VC3F
R5 270
S1 OPERATION
CN7
GND
POWER LED
KS 0
So
UNSW 5V
REMOTE
From/To 28 SW/DISPLAY CN7 (Page 3-70)
IC1 GP1U541X

IRCUIT BOARD

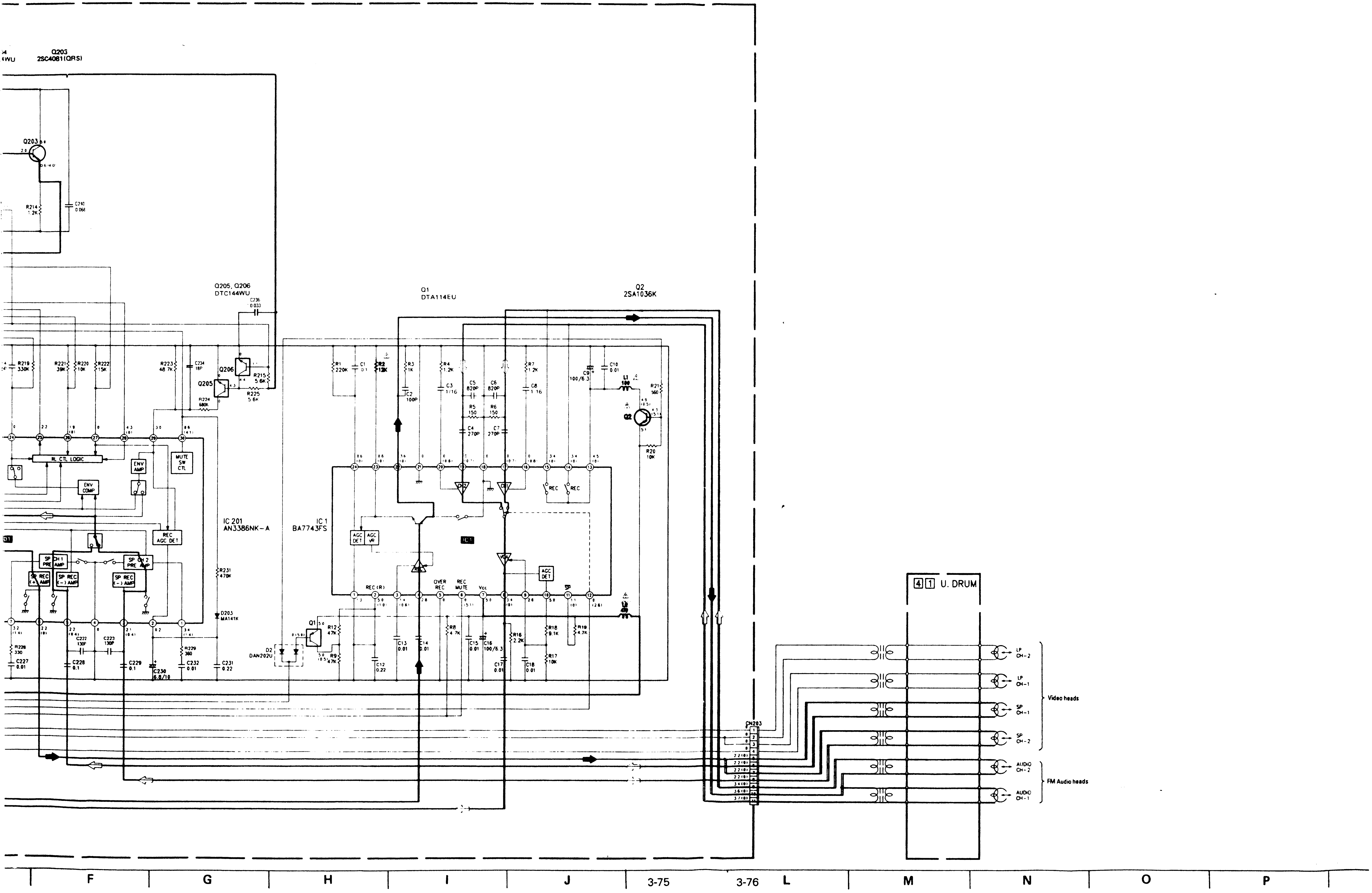


D1 POWER
POWER
B
S1
IC1
CN5
H.PHONE IN
JA2
R1 H.PHONE LEVEL
R4 REC BALANCE
K1
LC4
R2 MIC MIX
CN3
JA6 PAUSE CTL IN
JA5 MIC IN
JA3
JA2
JA1
LC2
LC1
R AUDIO IN L
VIDEO IN
EPB20559
JACK PWB ASS'Y
CMK-54X
2
3
4
5
7

3.41 PRE/REC SCHEMATIC DIAGRAM



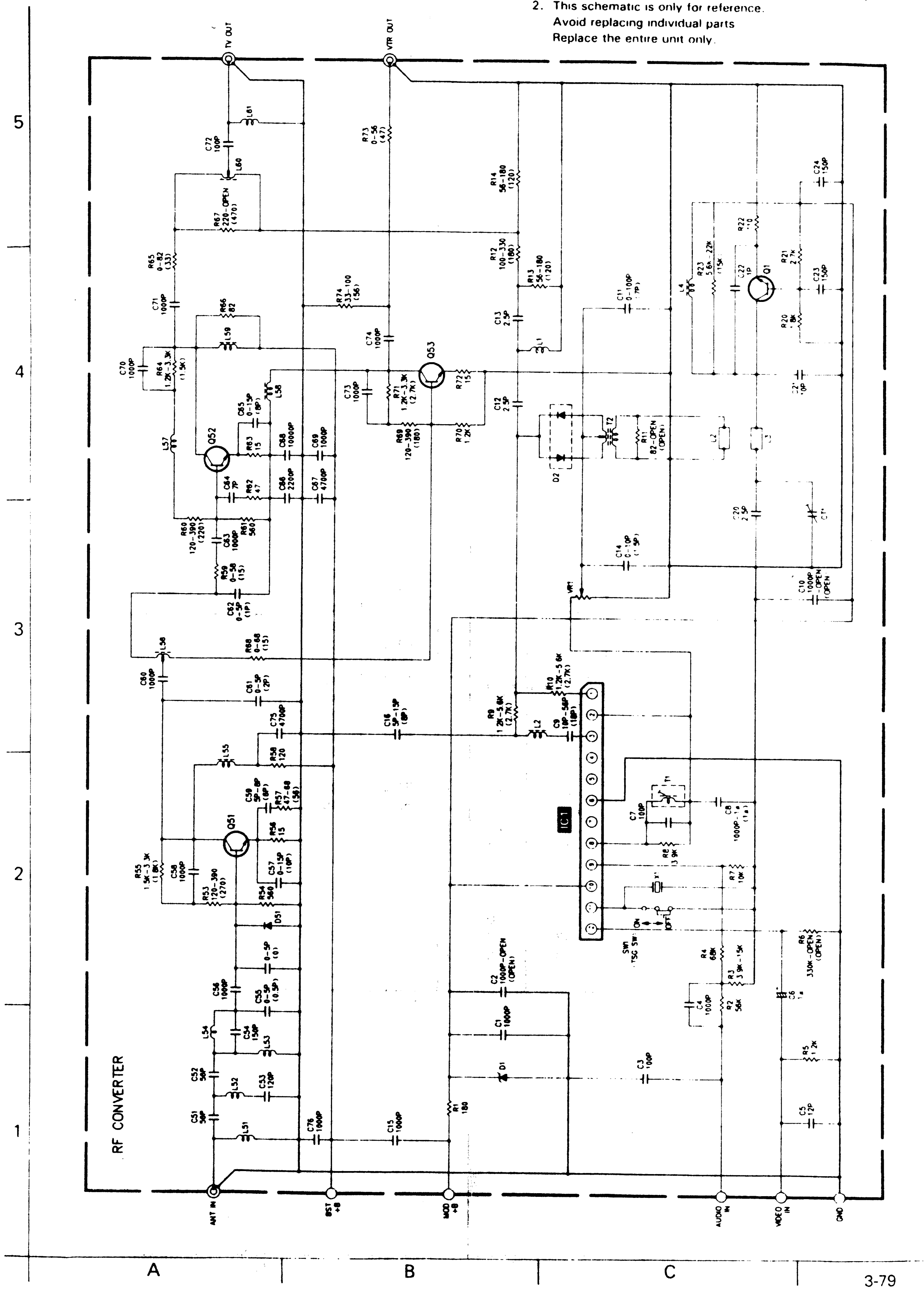
4 3 PRE/REC
PB 0.4 Vp-p
REC/PB 2.6 Vp-p
PB 0.4 Vp-p REC 0.4 Vp-p
Q201 2SA1576(QRS)
Q202 2SC4081(QRS)
Q204 DTC144WU
Q203 2SC4081(QRS)
From/To 0 3 MAIN (VIDEO) CN201 (Page 3-48)
CN201
GND
PB COLOR
REC FM COLOR
PB FM
GND
SYNC
From/To 0 3 MAIN (VIDEO) CN202 (Page 3-48)
CN202
REC
SWD 5V
AUTO MAN SLOW
COLOR ROT
DRUM FF
SP
REC START
HEAD SEL
FMA FF
HiFi REC START
REC/PB 5.0 Vp-p
From/To 0 3 MAIN (AUDIO) CN3 (Page 3-27)
CN1
REC FM
PB FM
GND
REC 0.1 Vp-p
PB 1.0 Vp-p
R201 1K
C203 680P
C204 15P
C205 0.01
R202 2.2K
R204 390
R206 750
C207 0.01
R207 2.2K
R209 680
L205 47
C208 68P
L206 220
R210 560
C709 470P
R212 470
C211 13P
L207 33
C210 16P
R211 1.2K
R214 1.2K
C740 0.068
L203 22
L202 56
C206 33P
L204 47
R203 2.2K
R205 390
R208 2.2K
C201 47/6.3
C202 0.01
R217 5.6K
D201
D202
D204
D205 MA141A
R216 15K
R230 100K
R218 5.6K
C212 47P
C213 0.1
C215 0.01
C214 390P
R219 330K
R221 39K
R220 10K
R222 15K
MUTE SW
AGC DET
AGC AMP
PB/REC SEL
PB AMP
HL CTL LOGIC
ENV COMP
AMP
IC201
LP CH2 PRE AMP
LP REC (-) AMP
LP CH1 PRE AMP
LP REC (-) AMP
LP REC (+) AMP
SP CH1 PRE AMP
SP REC (+) AMP
SP REC (-) AMP
Vcc
L208 47
C243 0.047
C216 47/16
C217 0.056
R226 270
C218 0.01
C219 0.1
C220 110P
C221 180P
C224 0.1
C225 0.1
R227 160
R228 330
C226 0.01
C227 0.01
C222 130P
C223 130P
C228 0.1
7
6
5
4
3
2
1
A
B
C
D
E
F


Q203
2SC4081(QRS)
Q203
R214 1.2K
C740 0.068
Q205, Q206
DTC144WU
C236 0.033
R219 330K
R221 39K
R220 10K
R222 15K
R223 48.7K
C234 18P
Q206
Q205
R215 5.6K
R225 5.6K
R224 680K
RL CTL LOGIC
ENV AMP
MUTE SW CTL
ENV COMP
REC AGC DET
IC 201
AN3386NK-A
SP PRE
CH 1 AMP
SP CH 2 PRE AMP
SP REC (+) AMP
SP REC (-) AMP
SP REC (-) AMP
R231 470K
D203 MA141K
R228 330
C227 0.01
C222 130P
C223 130P
C228 0.1
C229 0.1
C230 6.8/10
R229 360
C232 0.01
C231 0.22
Q1
DTA114EU
IC 1
BA7743FS
R1 220K
C1 0.1
R2 12K
R3 1K
C2 100P
R4 1.2K
C3 1/16
C5 820P
C6 820P
R5 150
R6 150
C4 270P
C7 270P
R7 1.2K
C8 1.16
C9 100/6.3
C10 0.01
L1 100
R21 560
Q2
2SA1036K
R20 10K
AGC DET
AGC VR
AGC DET
REC
REC
REC (R)
OVER REC
REC MUTE
Vcc
SP
Q1
R12 47K
R9 47K
D2
DAN202U
C13 0.01
C14 0.01
C12 0.22
R8 4.7K
C15 0.01
C16 100/6.3
R16 2.2K
C17 0.01
C18 0.01
R18 9.1K
R17 10K
R19 4.7K
CN203
4 1 U. DRUM
LP CH-2
LP CH-1
SP CH-1
SP CH-2
Video heads
AUDIO CH-2
AUDIO CH-1
FM Audio heads
F
G
H
I
J
L
M
N
O
P

3.43 RF CONVERTER SCHEMATIC DIAGRAM (E/EG)

Note:

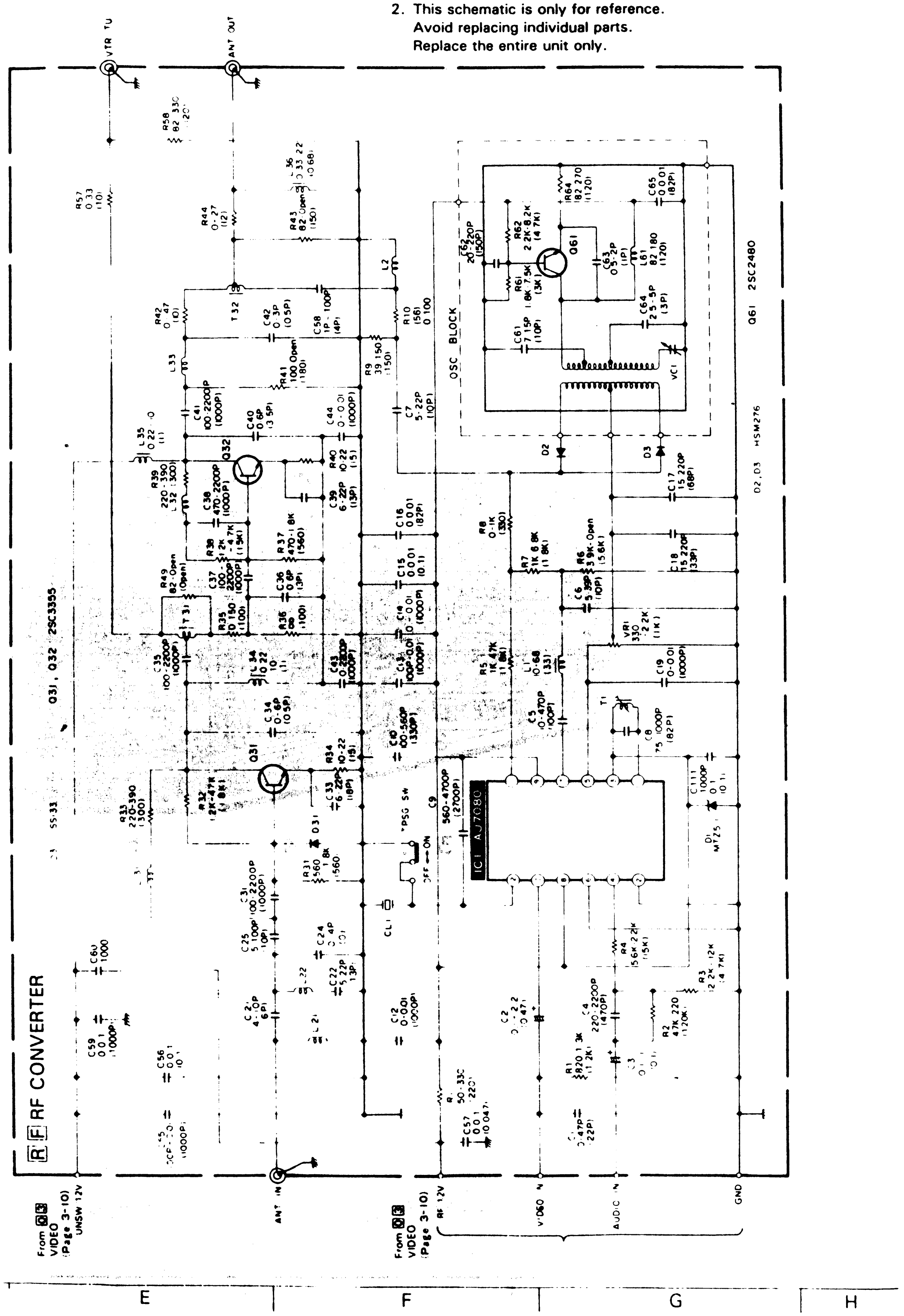
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference. Avoid replacing individual parts. Replace the entire unit only.


TV OUT
VTR OUT
RF CONVERTER
IC1
Q51
Q52
Q53
Q1
ANT IN
BST +B
MOD +B
AUDIO IN
VIDEO IN
GND
SW1 TSG SW
5
4
3
2
1
A
B
C

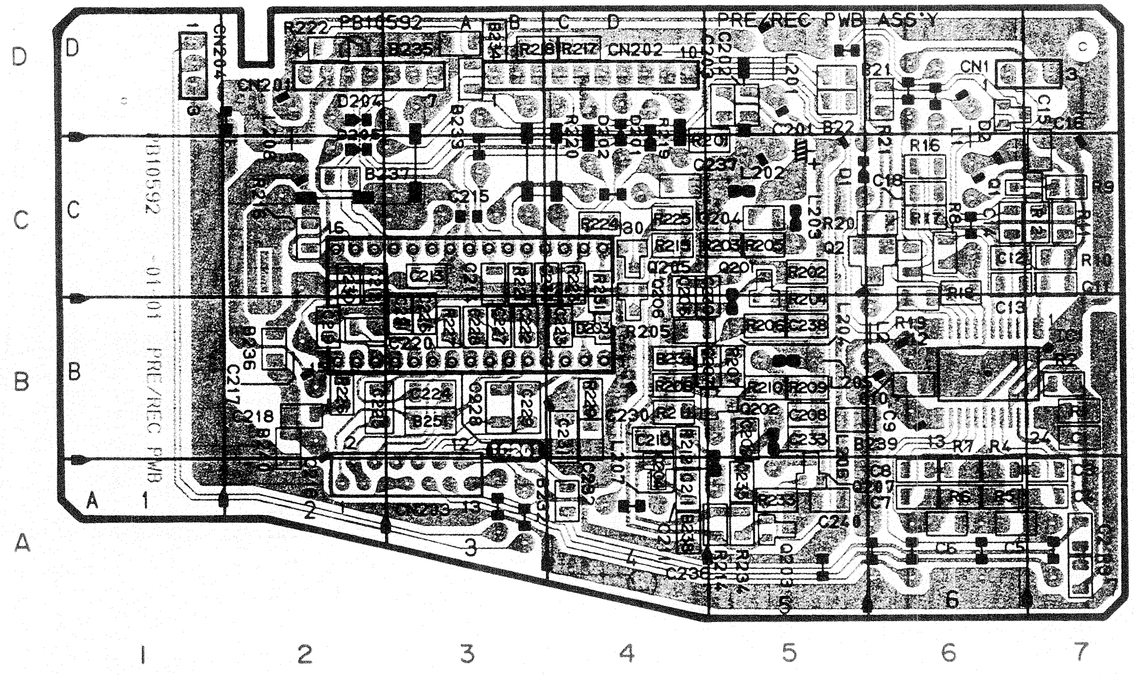
3.44 RF CONVERTER SCHEMATIC DIAGRAM (EK)

NOTES:

1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference. Avoid replacing individual parts. Replace the entire unit only.


VTR TU
ANT OUT
OSC BLOCK
Q61 2SC2480
D2, D3 HSM276
Q31, Q32 2SC3355
IC1 AJ7080
PSG SW
RF CONVERTER
ANT IN
From VIDEO (Page 3-10) UNSW 12V
From VIDEO (Page 3-10) RF 12V
VIDEO IN
AUDIO IN
GND
E
F
G
H

3.42 PRE/REC CIRCUIT BOARD



- Address of chip parts

1D
Address

REF No.	LOCATION
IC	
IC1	1B
TRANSISTOR	
Q1	6C
Q2	5C
DIODE	
D2	6D
RESISTOR	
R1	7B
R2	7B
R3	7A
R4	6B
R5	6A
R6	6A
R7	6B
R8	6C
R9	7C
R12	7C
R16	6C
R17	6C
R18	6C
R19	6C
R20	6C
R21	6D
CAPACITOR	
C1	7B
C2	7A
C3	7A
C4	7A
C5	6A
C6	6A
C7	6A
C8	6A
C10	6B
C12	6C
C13	6C
C14	6C
C15	7D
C17	6C
C18	6C

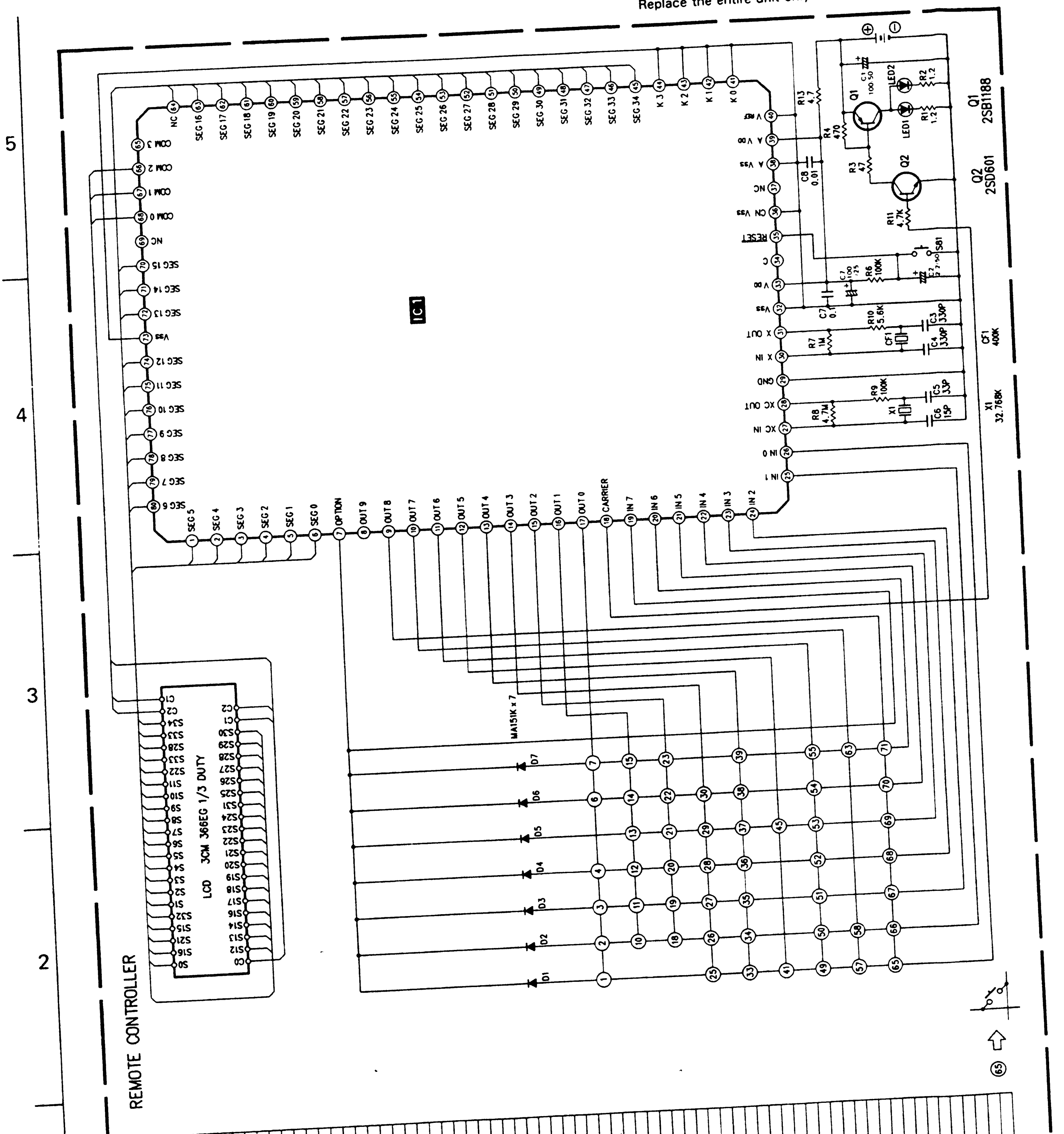
REF No.	LOCATION
TRANSISSOR	
Q201	5C
Q202	5B
Q203	5A
Q204	4A
Q205	4C
Q206	4C
DIODE	
D203	4B
RESISTOR	
R201	5C
R202	5C
R203	5C
R204	5C
R205	4B
R206	5B
R207	5B
R208	4B
R209	5B
R210	5B
R211	4B
R212	4B
R214	5A
R215	4C
R216	2C
R217	4D
R218	4D
R221	3C
R222	2D
R223	4C
R224	4C
R225	4C
R226	2B
R227	3B
R228	3B
R229	4B
R230	2C
R231	4C

REF No.	LOCATION
CAPACITOR	
C202	5D
C203	5D
C204	5C
C205	5C
C206	4C
C207	5B
C208	5B
C209	5B
C210	4B
C211	4A
C212	2C
C213	3C
C214	3C
C218	2B
C219	2B
C220	3B
C221	3B
C222	3B
C223	4B
C224	3B
C225	2B
C226	3B
C227	3B
C228	3B
C229	3B
C231	4B
C232	4A
C234	4C
C240	5A

3.45 REMOTE CONTROL SCHEMATIC DIAGRAM

Note:

1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.

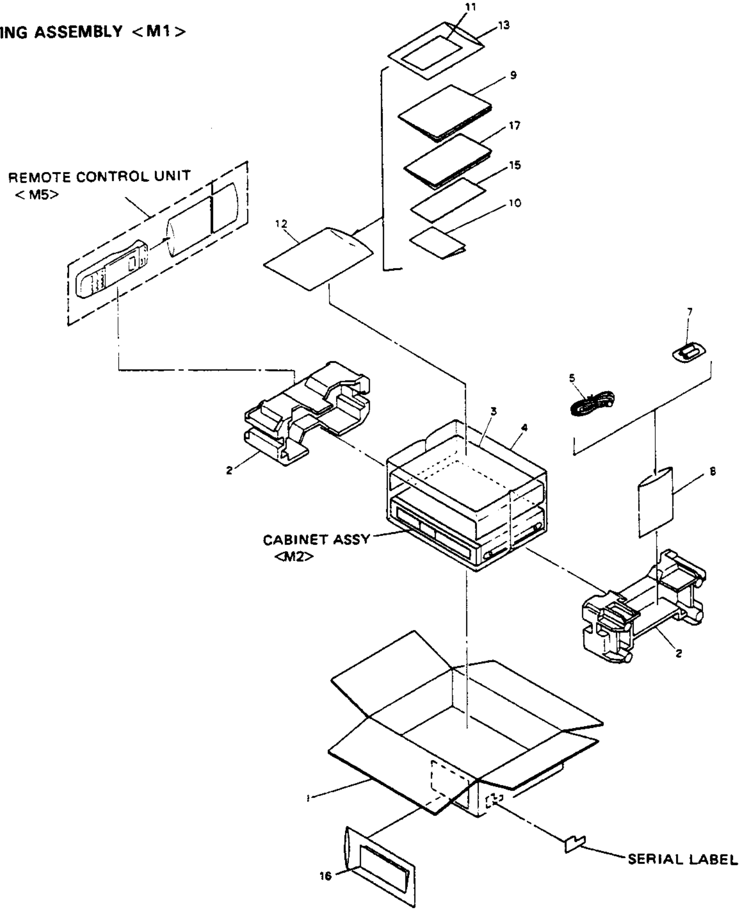


REMOTE CONTROLLER
IC1
LCD 3CM 366EG 1/3 DUTY
MA151K x 7
D1
D2
D3
D4
D5
D6
D7
Q1 2SB1188
Q2 2SD601
CF1 400K
X1 32.768K
C1 100/50
C3 330P
C4 330P
C5 33P
C6 15P
C7 0.1
C8 0.01
R1 1.2
R2 1.2
R3 47
R4 470
R6 100K
R7 1M
R8 4.7M
R9 100K
R10 5.6K
R11 4.7K
R13 4.7
LED1
LED2
SB1
OUT 0
OUT 1
OUT 2
OUT 3
OUT 4
OUT 5
OUT 6
OUT 7
OUT 8
OUT 9
OPTION
CARRIER
IN 0
IN 1
IN 2
IN 3
IN 4
IN 5
IN 6
IN 7
K 0
K 1
K 2
K 3
V REF
A V DD
A VSS
CN VSS
RESET
X OUT
X IN
GND
XC OUT
XC IN
COM 0
COM 1
COM 2
COM 3
1
2
3
4
5
A
B
C
D

KEY NO.	FUNCTION
1	A/B CODE
2	CLOCK ADJ
3	1
4	6
5	
6	MARK
7	EDIT MODE
8	
9	
10	MEMORY PROGRAM
11	2
12	7
13	CH ∨/CURSOR ←
14	EDIT START
15	EDIT STANDBY
16	
17	
18	MEMORY CANCEL
19	3
20	8
21	CH ∧/CURSOR →
22	INDEX/PAGE −
23	ERASE
24	
25	TRANS
26	PROGRAM/ACCESS
27	4
28	9
29	DISPLAY/ROTATE
30	GO-TO/TIMED PAGE
31	
32	
33	TIMER
34	CANCEL/RESET
35	5
36	0/AUX
37	VPS/CH/REVEAL
38	INTRO/PAGE +
39	A MONITOR/LARGE/NORMAL
40	
41	MENY/TEXT
42	
43	
44	
45	CANCEL/RESET
46	
47	
48	
49	STOP/HOLD
50	EJECT
51	FF/BLUE
52	REW/RED
53	REC
54	PLAY/OK/STORE
55	PAUSE/MIX
56	
57	V SEARCH>/YELLOW
58	V SEARCH</GREEN
59	
60	
61	
62	
63	SKIP/BLANK SEARCH
64	
65	MONITOR TV/VIDEO
66	TV OPERATE
67	TV CH ∨
68	TV CH ∧
69	TV VOL +
70	TV VOL −
71	OPERATE

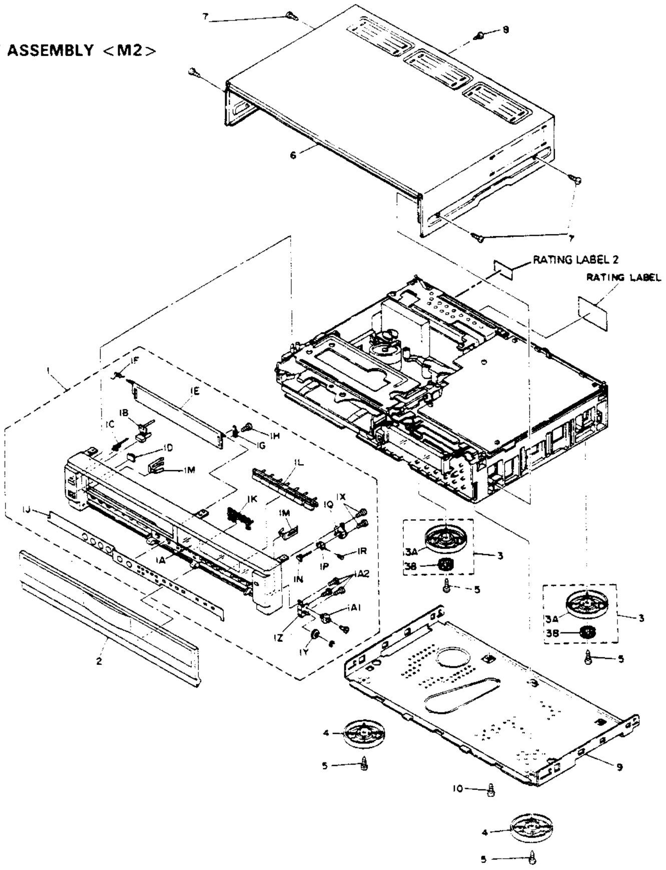
SECTION 4
EXPLODED VIEWS AND PARTS LIST

4.1 PACKING ASSEMBLY <M1>



#△ REF No.	PART No.	PART NAME, DESCRIPTION
******************************		
		PACKING ASSEMBLY <M1>
1	PQ33955	PACKING CASE,EG
1	PQ33955-2	PACKING CASE,E
1	PQ33955-3	PACKING CASE,EK
2	PQ33956A	CUSHION ASSY
3	PQ41026-8	PROTECT SHEET
4	PQM30021-69	POLY BAG,E/EG
4	PQM30045-32	POLY BAG,EK
5	PU59168-3	RF CABLE
	or PU59167-3	RF CABLE
7	UM-3DJ2P	BATTERY,X2,CELLS
8	PQM30023-8	POLY BAG,EK
8	QPGA020-02005	POLY BAG,E/EG
△ 9	PU30425-1244	INSTRUCTIONS,EK
△ 9	PU30425-1235-1	INSTRUCTIONS,E/EG
10	TCN-3379	TAPE CATALOG
11	BT-20114	WARRANTY CARD,EG
12	PQM30023-5	POLY BAG,EK
12	QPGA025-03505	POLY BAG,E/EG
13	PQ33909	POLY BAG,EG
15	BT-20066A	E DISTRI LIST,EK
16	BT-20060	GUARANTY CARD,EK
17	PU61342	INSTRUCTIONS SHEET(RCU),EG

4.2 CABINET ASSEMBLY <M2>


7
8
6
7
RATING LABEL 2
RATING LABEL
1
1F
1E
1B
1C
1D
1G
1H
1M
1L
1K
1X
1Q
1M
1R
1P
1N
1A2
1A1
1A
1J
1Z
1Y
2
3A
3B
3
5
3A
3B
3
5
9
4
5
10
4
5

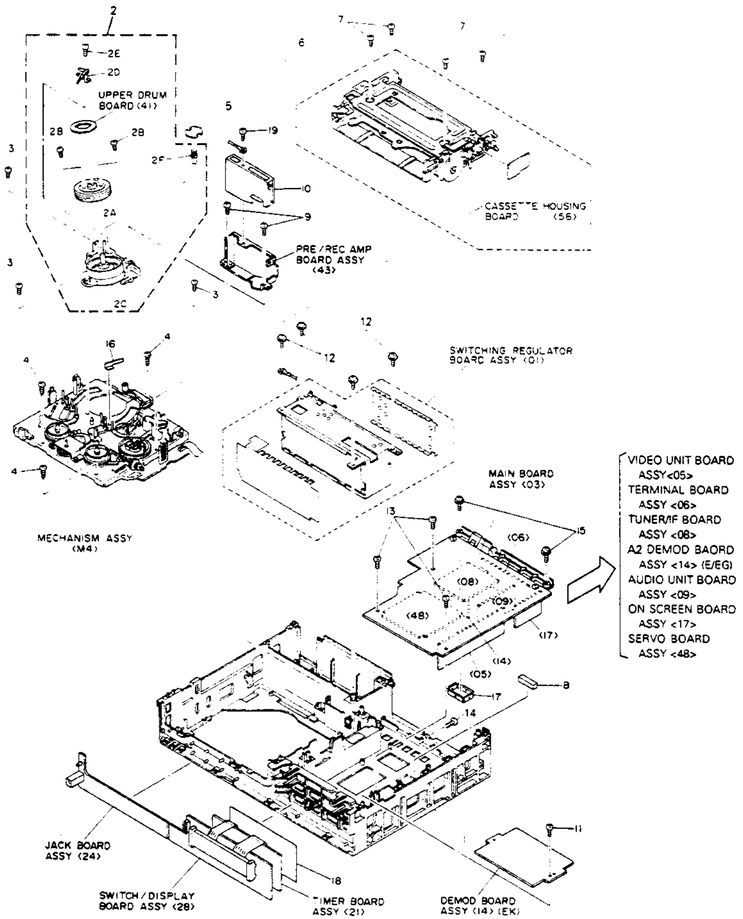
****

CABINET ASSEMBLY <M2>

#△ REF No.	PART No.	PART NAME, DESCRIPTION
△ 1	PQ11040B-9	FRONT PANEL ASSY,E/EG
1	PQ11040D-9	FRONT PANEL ASSY,EK
1A	PQ33478-2	SHEET(DISP),E/EG
△ 1A	PQ33478-3	SHEET(DISP),EK
1A1	PEME0813	GEAR ASSY
1A2	SDSF2008Z	SCREW,X3
1B	PQ33477-2	BUTTON(POWER)
1C	PQ33486	INDICATOR(POWER)
1D	PQ44894	IFR WINDOW
1E	PQ21064-1-1	CASSETTE HOUSING DOOR
1F	PQ43628-1-1	TORSION SPRING
1G	PQ44389	BRACKET
1H	SDSF2005Z	SCREW
1J	PQ21273-1-4	PLATE(FRONT),E/EG
1J	PQ21273-2-4	PLATE(FRONT),EK
1K	PQ21270	BUTTON(PROG)
1L	PQ21269	BUTTON(OPERATION)
1M	PQ33488-1-1	EARTH PLATE,X2
1N	PQ33489-2	BUTTON(OPEN)
1P	PQ45028-1-1	LEVER
1Q	PQ33158	COVER
1R	PQM30002-202	COMP SPRING
1X	SDSF2008Z	SCREW,X2
1Y	PQ33495-1-1	SHAFT
1Z	PQ33484-1-2	BEARING
2	PQ11219A-1	DOOR ASSY,EG
2	PQ11219B-1	DOOR ASSY,E
2	PQ11219C-1	DOOR ASSY,EK
3	PQ33012D	FOOT ASSY,X2
3A	PQ33013-4	FOOT(1),X2
3B	PQ33014	FOOT(2),X2
4	PQ33013-4	FOOT(1),X2
5	SDSF3010Z	SCREW,X4 FOR FOOT
△ 6	PQ11144-1-3	TOP COVER
7	PQ43827	SPECIAL SCREW,X4 FOR TOP COVER
8	SDSF3010M	SCREW
△ 9	PQ11145	BOTTOM COVER
10	SDSF3010Z	SCREW,FOR BOTTOM COVER

4.3 CHASSIS ASSEMBLY <M3>

BEWARE OF BOGUS PARTS
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

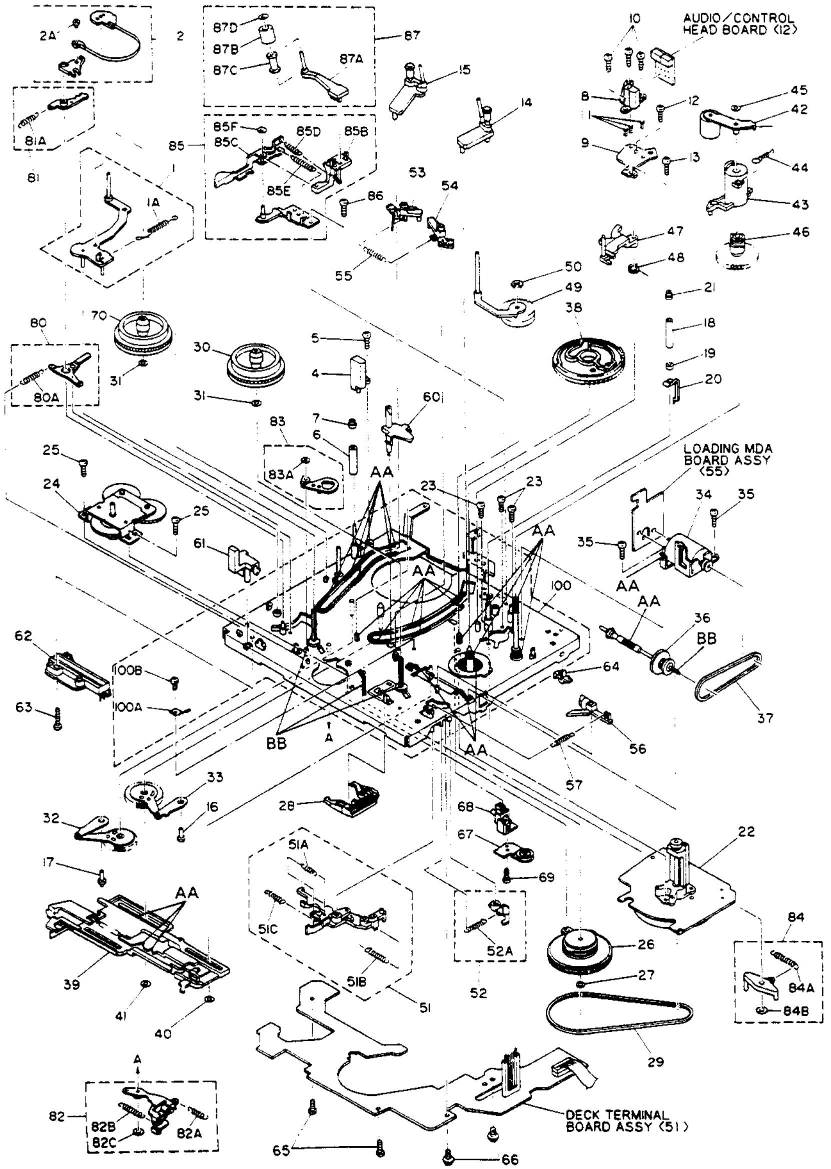

2
2E
2D
UPPER DRUM BOARD (41)
2B
2B
2F
2A
2C
3
3
3
5
19
10
9
PRE/REC AMP BOARD ASSY (43)
6
7
7
CASSETTE HOUSING BOARD (56)
16
4
4
4
12
12
SWITCHING REGULATOR BOARD ASSY (01)
MECHANISM ASSY (M4)
MAIN BOARD ASSY (03)
13
15
(06)
(08)
(09)
(48)
(17)
(14)
(05)
VIDEO UNIT BOARD ASSY<05>
TERMINAL BOARD ASSY <06>
TUNER/IF BOARD ASSY <08>
A2 DEMOD BAORD ASSY <14> (E/EG)
AUDIO UNIT BOARD ASSY <09>
ON SCREEN BOARD ASSY <17>
SERVO BOARD ASSY <48>
8
17
14
11
JACK BOARD ASSY (24)
SWITCH/DISPLAY BOARD ASSY (28)
18
TIMER BOARD ASSY (21)
DEMOD BOARD ASSY (14) (EK)

****

CHASSIS ASSEMBLY <M3>

#△ REF No.	PART No.	PART NAME, DESCRIPTION
△ 1	PQ11060	BOTTOM CHASSIS
2	PDV2254A	DRUM ASSEMBLY
2A	PDM2001C-8	UPPER DRUM ASSEMBLY
2B	PDM4165A	DRUM SCREW ASSEMBLY, X2
2C	PDM2138AC	LOWER DRUM MOTOR ASSEMBLY
2D	PDM4229A-1	BRUSH ASSY
2E	SPSG2606Z	SCREW
2F	PDM4226A	ROLLER ASSY
3	SPST2610Z	SCREW,X3,FOR DRUM ASSY
	or SDST2610Z	SCREW,X3,FOR DRUM ASSY
4	PQ43831	SPECIAL SCREW,X3,FOR MECH
5	PQ45160	INERTIA PLATE
6	PUS29499D	CASSETTE HOUSING ASSY
7	SDST2608Z	SCREW,X4,CASS HOUSING ASSY
	or SPST2608Z	SCREW,X4,CASS HOUSING ASSY
8	PQM30029-129	SPACER,FOR AUDIO UNIT
9	SDSG2606Z	SCREW,X2,FOR PRE REC
10	PQ33877-1-1	SHIELD CASE(2),FOR PRE REC
11	SDSF2608Z	SCREW, FOR DEMOD BOARD
12	SDSF2610Z	SCREW,X4,FOR SW.REG BOARD
13	SDSF2610Z	SCREW,X3,FOR MAIN BOARD
14	SDSF3010M	SCREW,FOR TERMINAL BOARD
15	GPSF2610Z	SCREW,X2,FOR TERMINAL BOARD
16	PQ45556	LOADING GUIDE
17	PQ42582	PRE AMP SHIELD2
18	PQ34163	SHIELD PLATE
19	SDSG2606Z	SCREW

4.4 *MECHANISM ASSEMBLY <M4>*


AUDIO/CONTROL HEAD BOARD (12)
LOADING MDA BOARD ASSY (55)
DECK TERMINAL BOARD ASSY (51)
AA
BB
A

Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

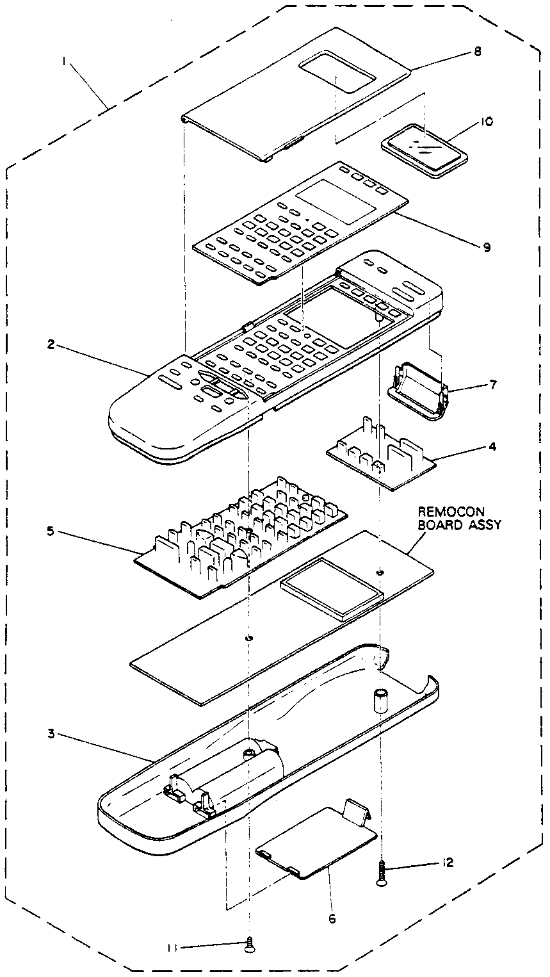
#△ REF No.	PART No.	PART NAME, DESCRIPTION
* * * * * * * * * * * * * * *	* * * * * * * * * * * * * * *	* * * * * * * * * * * * * * *

MECHANISM ASSEMBLY <M4>

#△ REF No.	PART No.	PART NAME, DESCRIPTION
1	PQ43497E-10	TENSION ARM ASSY
1A	PQ43500	TENSION SPRING
2	PQ44734A-5	TENSION BAND ASSY
2A	PQ44737-2	ADJUST PIN
4	PU60616	FULL ERASE HEAD
5	SDSF2614Z	SCREW
6	PQ43505-1-1	ROLLER
7	PQ43506	GUIDE POLE CAP
8	PU61002	AUDIO/CONTROL HEAD
9	PQ43509	HEAD BASE
10	PQ43687A	SPECIAL SCREW,X3
11	PQM30002-192	COMPRESSION SPRING,X3
12	SPSF2608M	SCREW
13	SPSP2606Z	SCREW
14	PU61103-2	POLE BASE(TU) ASSY
15	PU61151-2-3	POLE BASE(SUP) ASSY
16	PQ43524	STOPPER
17	PQ43525	STOPPER 2
18	PQ43526-1-3	TAPE GUIDE
19	PQ43670-1-1	GUIDE FLANGE
20	PQ43675	TAPE GUARD
21	PQ43506	GUIDE POLE CAP
△ 22	PU61003-1-2	CAPSTAN MOTOR
23	SPSG2608Z	SCREW,X3
24	PU61246	IDLER GEAR UNIT
25	SPST2606Z	SCREW,X2
26	PU61245-1-1	CLUTCH UNIT
27	PQM30017-8	SLIT WASHER
28	PQ43532B	CHANGE LEVER ASSY
29	PU61006	TIMING BELT
30	PU60858-1-4	REEL DISK (TAKE-UP)
31	PQM30018-54	SPACER,X2
32	PQ43537A	LOADING ARM ASSY (SUPLLY)
33	PQ43542B	LOADING ARM ASSY (TAKE-UP)
△ 34	PQ43676B-5	MODE MOTOR ASSY
	or PQ43676C-7	MODE MOTOR ASSY
35	SPST2606Z	SCREW,X2
36	PQ43548A-3	WORM CLUTCH ASSY
37	PQM30003-23	BELT
38	PQ20822-2-4	CONTROL CAM
39	PQ44581A-6	PLATE ASSY
40	PQM30017-12	SLIT WASHER
41	PQM30017-8	SLIT WASHER
42	PQ43558A	PINCH ROLLER ARM ASSY
	or PQ43558B	PINCH ROLLER ARM ASSY
43	PQ32415	PINCH ROLLER PRESS LEVER
44	PQM30001-233	TENSION SPRING
45	PQM30017-12	SLIT WASHER
46	PQ32416-2	PINCH ROLLER CAM
47	PQ43567A-8	GUIDE ARM ASSY

#△ REF No.	PART No.	PART NAME, DESCRIPTION
48	PQ43569-1-3	TORSION SPRING
49	PQ43570A-1	HALF LOADING GEAR ASSY
50	PQM30017-12	SLIT WASHER
51	PQ43575A-5	CANCEL LEVER ASSY
51A	PQM30001-273	TENSION SPRING
51B	PQM30001-237	TENSION SPRING
51C	PQM30001-274	TENSION SPRING
52	PQ43578A-2	HOOK ASSY
52A	PQM30001-238	TENSION SPRING
53	PQ43581C	MAIN BRAKE(SUPPLY) ASSY
54	PQ43582B	MAIN BRAKE(TAKE-UP) ASSY
55	PQM30001-251	TENSION SPRING
56	PQ43583A	SUB BRAKE ASSY (TAKE-UP)
57	PQM30001-298	TENSION SPRING
60	PU60621-1-2	LED HOLDER,(INCL.D1)
61	PU60624-1-4	REC SAFETY SWITCH
62	PU61247	SLIDE ENCORDER,(S3)
63	SDSF2614Z	SCREW
64	PQ32516	PWB HOLDER
65	SDST2616Z	SCREW, X2
66	GPSF2608Z	SCREW, X2
67	PQ43912A-7	PULLEY ARM ASSY
68	PQ33249	PULLEY BASE
69	PQ45121A	SCREW
70	PU60859-1-4	REEL DISK (SUPPLY)
80	PQ44739A-1	LOCK LEVER 1 ASSY
80A	PQM30001-278-46	TENSION SPRING
81	PQ44741A-3	LOCK LEVER 2 ASSY
81A	PQM30001-279-52	TENSION SPRING
82	PQ44743A-6	IDLER LEVER ASSY
82A	PQM30001-342	TENSION SPRING
82B	PQM30001-301	TENSION SPRING
82C	PQM30017-5	SLIT WASHER
83	PQ44746A-2	OFF LEVER ASSY
83A	PQM30017-5	SLIT WASHER
84	PQ44585A-6	CAPSTAN BRAKE ASSY
84A	PQM30001-282-52	SPRING
84B	PQM30017-8	SLIT WASHER
85	PQ44843A-2	ARM BASE ASSY
85B	PQ33511-1-2	CLEANER ARM
85C	PQ44841-1-3	CANCEL LEVER
85D	PQM30001-299	TENSION SPRING
85E	PQM30001-300	TENSION SPRING
85F	PQM30017-5	SLIT WASHER
86	SPST2606Z	SCREW
87	PQ44840A-3	CLEANER BASE ASSEMBLY
87A	PQ44844A	CLEANER BASE
87B	PQ44837	CLEANER
87C	PQ44838	CLEANER HOLDER
87D	PQM30017-38	SLIT WASHER
100	PQ20994B-4	MAIN DECK ASSY
	or PQ21232B	MAIN DECK ASSY
100A	PQ43849	EARTH PLATE
100B	SPST2604Z	SCREW

4.5 REMOTE CONTROL UNIT <M5>



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REMOTE CONTROLLER ASSEMBLY <M5>

#△	REF No.	PART No.	PART NAME, DESCRIPTION
△	1	PQ11202J-7	REMOTE CONTROLLER,E/EG
△	1	PQ11202Q-7	REMOTE CONTROLLER,EK
	2	PQ11203-5	COVER(FRONT),EK
	2	PQ11203-7	COVER(FRONT),E/EG
	3	PQ11093	COVER(REAR)
	4	PQ33870-3	BUTTON(1)
	5	PQ21253-4	BUTTON(2)
	6	PQ33609	CAP(BATTERY)
	7	PQ33610	WINDOW(IR)
	8	PQ33871-3	DOOR
	9	PQ33872-12	PLATE,EK
	9	PQ33872-7	PLATE,E/EG
	10	PQ45167	WINDOW(DOOR)
	11	SSSF2008M	SCREW
	12	SSSF2006M	SCREW

SECTION 5
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the △ symbol are critical for safety. Replace only with specified part numbers.

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SWITCH REGULATOR BOARD ASSEMBLY <01>

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB20526D	SW REGULATOR BOARD ASSY,E	
	PWBA	PB20526H	SW REGULATOR BOARD ASSY,EK	
	PWBA	PB20526T	SW REGULATOR BOARD ASSY,EG	
	SCW1	SDST2605Z	SCREW,X2	
	SLD1	PQ21202-1-3	SHIELD CASE(1)	
	IC1	LM358N	IC	
		or LM358P	IC	
		or XRA10358	IC	
		or BA10358	IC	
	Q1	2SC4304	TRANSISTOR,EK	
	Q1	2SC4517A	TRANSISTOR,E/EG	
		or 2SC3752(LM)	TRANSISTOR,EK	
	Q2	2SC3616(MLK)	TRANSISTOR	
	Q5	2SB1425(EU)	TRANSISTOR	
	D1	10E6-F2	DIODE	
	D2	10E6-F2	DIODE	
	D3	10E6-F2	DIODE	
	D4	10E6-F2	DIODE	
	D5	AU01	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
	D6	AU01	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
	D7	MTZ27BT-77	ZENER DIODE	
	D8	AU01Z	FR DIODE	
		or ERA48-02	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D14	AU01Z	FR DIODE	
		or ERA48-02	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D15	AU01Z	FR DIODE	
		or ERA48-02	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D16	FML-12S	FR DIODE	
		or 5DL2CZ41A	FR DIODE	
		or FCF06A20	FR DIODE	
		or MA649-VE	FR DIODE	
	D17	FMB-24	BARRIER DIODE	
		or F5KQ40B	BARRIER DIODE	
		or 5GWJ2CZ42	SB DIODE	
	D18	AU01Z	FR DIODE	
		or ERA48-02	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D19	MTZ33AT-77	ZENER DIODE	
	D21	AU01Z	FR DIODE	
		or ERA48-02	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D22	MTZV6.2A	ZENER DIODE	
	D23	RD15ES-T1B1	ZENER DIODE	
	R1	YU40344-2R2	WW RESISTOR.	
		or PERE0505-2R2	WW RESISTOR	
	R2	QRD161J-334	RESISTOR	330KΩ,1/6W
	R3	QRD161J-334	RESISTOR	330KΩ,1/6W
	R4	QRD161J-563	RESISTOR	56KΩ,1/6W
	R5	QRG029J-683G	OMF RESISTOR	68KΩ,2W
	R6	QRG029J-241G	OMF RESISTOR	240Ω,2W
	R7	QRD161J-122	RESISTOR	1.2KΩ,1/6W
	R8	QRD161J-561	RESISTOR	560Ω,1/6W
	R9	QRX014J-R39Z	MF RESISTOR	0.39Ω,1W
	R10	QRG029J-273A	OMF RESISTOR	27KΩ,2W
△	R16	QRZ0077-470X	FUSIBLE RESISTOR	47Ω,1/4W
	R17	QRD161J-471	RESISTOR	470Ω,1/6W
	R18	QRD161J-102	RESISTOR	1KΩ,1/6W
	R19	QRV144F-1071A	CMF RESISTOR	1.07KΩ,1/4W
	R20	QRV144F-1001A	CMF RESISTOR	1KΩ,1/4W
△	R21	QRZ0077-470X	FUSIBLE RESISTOR	47Ω,1/4W
	R22	QRD161J-332	RESISTOR	3.3KΩ,1/6W
	R23	QRD161J-471	RESISTOR	470Ω,1/6W
	R24	QRV144F-4423AY	CMF RESISTOR	442KΩ,1/4W
	R25	QRV144F-1002A	CMF RESISTOR	10.0KΩ,1/4W
	R26	QRV144F-1182A	CMF RESISTOR	11.8KΩ,1/4W
△	R27	QRZ0052-130	FUSIBLE RESISTOR	13Ω
	R28	QRD161J-331	RESISTOR	330Ω,1/6W
	R29	QRD161J-103	RESISTOR	10KΩ,1/6W
△	C1	QFZ9022-333	MM CAPACITOR,E/EG	0.033μF,250
△		or QFZ9037-333	M CAPACITOR,E/EG	0.033μF
△	C2	QFZ9022-223	MM CAPACITOR,EK	0.022μF,250
△	C2	QFZ9022-333	MM CAPACITOR,E/EG	0.033μF,250
△		or QFZ9037-223	M CAPACITOR,EK	0.022μF
△		or QFZ9037-333	M CAPACITOR,E/EG	0.033μF
△	C3	QFZ9022-333	MM CAPACITOR,EG	0.033μF,250
△	C3	QFZ9022-223	MM CAPACITOR,E/EK	0.022μF,250
△	C4	QCZ9016-101K	CAPACITOR,E	100PF
△	C4	QCZ9016-102K	CAPACITOR,EK	0.001μF
△		or QCZ9047-102	CAPACITOR,EK	0.001μF
△	C5	QCZ9016-101K	CAPACITOR,E	100PF
△	C5	QCZ9016-102K	CAPACITOR,EK	0.001μF
△		or QCZ9047-102	CAPACITOR,EK	0.001μF

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
△	C6	QCZ9016-102K	CAPACITOR,EK	0.001μF
△	C6	QCZ9016-222M	CAPACITOR,E/EG	0.0022μF
△		or QCZ9047-102	CAPACITOR,EK	0.001μF
△		or QCZ9048-222	CAPACITOR,E/EG	0.0022μF
△	C7	QCZ9016-102K	CAPACITOR,EK	0.001μF
△	C7	QCZ9016-222M	CAPACITOR,E/EG	0.0022μF
△		or QCZ9047-102	CAPACITOR,EK	0.001μF
△		or QCZ9048-222	CAPACITOR,E/EG	0.0022μF
△	C8	QCZ9016-102K	CAPACITOR,EK	0.001μF
△	C8	QCZ9016-222M	CAPACITOR,E/EG	0.0022μF
△		or QCZ9047-102	CAPACITOR,EK	0.001μF
△	C9	QCZ9016-102K	CAPACITOR,EK	0.001μF
△	C9	QCZ9016-222M	CAPACITOR,E/EG	0.0022μF
△		or QCZ9047-102	CAPACITOR,EK	0.001μF
△	C10	QCZ9016-222M	CAPACITOR	0.0022μF
△	C11	QCZ9016-222M	CAPACITOR	0.0022μF
	C12	PECA0738-826	E CAPACITOR	82μF
		or PECA0793-826	E CAPACITOR	82μF
	C13	QCZ0212-472	CAPACITOR	0.0047μF,1KV
	C14	QCZ0213-101Z	CAPACITOR	100PF
	C15	QFV11HJ-224	TF CAPACITOR	0.22μF,50V
		or PECA0780-224Z	M CAPACITOR	0.22μF,50V
	C16	QFL41HJ-682	M CAPACITOR	0.0068μF,50V
		or QFLA1HJ-682Z	M CAPACITOR	0.0068μF,50V
	C17	QETC1HM-475	E CAPACITOR	4.7μF,50V
	C18	QETC1JM-336	E CAPACITOR	33μF,63V
	C19	QEZ0125-277	E CAPACITOR	270μF
		or QEZ0138-277	E CAPACITOR	270μF
	C20	QETC1EM-227	E CAPACITOR	220μF,25V
	C21	QEZ0105-228	E CAPACITOR	2200μF
		or QEZ0137-228	E CAPACITOR	2200μF
	C22	QETB1CM-108	E CAPACITOR	1000μF,16V
	C23	QFL41HJ-102	M CAPACITOR	0.001μF,50V
		or QFLA1HJ-102Z	M CAPACITOR	0.001μF,50V
	C24	QEZ0136-228	E CAPACITOR	2200μF
		or QEZ0106-228	E CAPACITOR	2200μF
	C25	QETC1HM-476	E CAPACITOR	47μF,50V
	C26	QETC1VM-336	E CAPACITOR	33μF,35V
	C27	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
	C28	QEZ0156-127Z	E CAPACITOR	120μF
		or QEZ0135-127Z	E CAPACITOR	120μF
	C29	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C30	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
	C31	QETB1AM-108	E CAPACITOR	1000μF,10V
	C32	QETC1JM-226	E CAPACITOR	22μF,63V
	C34	QETC1CM-107	E CAPACITOR	100μF,16V
	C35	QFV11HJ-473	MM CAPACITOR	0.047μF,50V
		or QFV41HJ-473	TF CAPACITOR	0.047μF,50V
	L1	PU60943-330K	COIL	33μH
		or PELN0270-330K	COIL	
		or PELN0270-330KZ	COIL	
		or PELN0490-330K	COIL	
	L2	PU60943-330K	COIL	33μH
		or PELN0270-330K	COIL	
		or PELN0270-330KZ	COIL	
		or PELN0490-330K	COIL	
	L3	PU60943-330K	COIL	33μH

#△	REF No.	PART No.	PART NAME, DESCRIPTION
		or PELN0270-330KZ	COIL
		or PELN0490-330K	COIL
		or PELN0270-330K	COIL
	K1	PU60281-4	FERRITE BEADS,EG
	K2	PU60281-4	FERRITE BEADS,EG
△	PHS1	PC111S	PHOTO COUPLER,PC1
△	POC1	QMP3980-200	POWER CORD,E/EG
△	POC1	QMP5140-200	POWER CORD,EK
△	T1	PELN0480	SW TRANS
△	BKT1	PQ33738	BRACKET(SW REG)
	ETH1	PQ43872	EARTH PLATE, X2
△	HD1	QHS3771-108	STRAIN RELIEF
△	HD2	PU57505	FUSE CLIP,X2
△	HS1	PQ44610-1-2	HEAT SINK
△	HS2	PQ45133	HEAT SINK
△	LF1	PU59707	LINE FILTER,E/EG
△		or PELN0255	LINE FILTER,E/EG
△	LF2	PU61108	LINE FILTER
△		or PU60347	LINE FILTER
	SCW2	YQM30032-42	SCREW
	SCW3	SDSG3008Z	SCREW,FOR Q1
	SCW4	SDSG3006Z	SCREW
	SCW5	SDSG3008Z	SCREW,X2
	SCW6	SDSG3006Z	SCREW
	SLD2	PQ33739	SHIELD CASE(2)
	SLD3	PQ33740	SHIELD CASE(3)
	SLD4	PQ33741	SHIELD CASE(4)
△	TAB1	A74316	TAB,X2
	CN1	PU60910-104	WIRE TRAP
	CN2	PU60910-108	CONNECTOR
△	CP1	ICP-N25	CIRCUIT PROTECTOR
△	CP2	ICP-N20	CIRCUIT PROTECTOR

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
△	F1	QMF51E2-1R0	FUSE	T1.0A
△		or QMF51E2-1R0J1	FUSE	T1.0A

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MAIN BOARD ASSEMBLY <03>

#△	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA1	PB10572A1-02	MAIN BOARD ASSY,EG
	PWBA1	PB10572B1-02	MAIN BOARD ASSY,E
	PWBA1	PB10572C1-02	MAIN BOARD ASSY,EK
△	RF1	PERF0068	RF CONVERTER,E/EG
△	RF1	PU59981S-2	RF CONVERTER/MIX BOOSTER,EK
	CL1	PU49485-3	WIRE CLAMP
	ETH1	PQ43012-1-1	EARTH PLATE
	HD1	PEME0831	HOLDER,X2
	HD2	PEME0841	HOLDER,X2
	HD3	PEME0831-02	HOLDER,X2
	HD4	PEME0841-02	HOLDER,X2
	JA2	PU60612	EARPHONE JACK
		or PU61012	MINI JACK
	SCW1	SDST2605Z	SCREW
	SCW2	SDSF2608Z	SCREW,X2
	SLD1	PQ33127B	SHIELD PLATE ASSY
	SPC1	PU60010	SPACER
△	TB1	PQ20996-16	TERMINAL BOARD,EG
△	TB1	PQ20996-17	TERMINAL BOARD,E
△	TB1	PQ20996-3	TERMINAL BOARD,EK
	WR1	PW30402-BB12M	COAXIAL CORD,E/EG
	TP3	PEMC0727	TEST PIN,X22

– VIDEO SECTION –

#△	REF No.	PART No.	PART NAME, DESCRIPTION
	IC280	BA7106LS	IC,E/EG
		or XRA7106LS	IC,E/EG
	Q201	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q202	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q203	DTC114WS	TRANSISTOR
	Q204	DTC124ES	TRANSISTOR
	Q205	DTC124ES	TRANSISTOR
	Q206	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q207	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q208	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q210	2SA933S(RS)	TRANSISTOR
		or 2SA1267(YG)-TJK	TRANSISTOR
	Q211	2SA933S(RS)	TRANSISTOR
		or 2SA1267(YG)-TJK	TRANSISTOR
	Q213	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q214	2SA933S(RS)	TRANSISTOR
		or 2SA1267(YG)-TJK	TRANSISTOR
	Q218	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)JK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q219	DTC124ES	TRANSISTOR
	Q220	DTA124ES	TRANSISTOR
	Q221	DTA124ES	TRANSISTOR
	D201	1SS133	DIODE
		or MA165	DIODE
	D205	1SS133	DIODE
		or MA165	DIODE
	D207	1SS133	DIODE
		or MA165	DIODE
	D208	1SS133	DIODE
		or MA165	DIODE
	D209	1SS133	DIODE
		or MA165	DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
D214	1SS133	DIODE	
	or MA165	DIODE	
D215	1SS133	DIODE	
	or MA165	DIODE	
D216	1SS133	DIODE	
	or MA165	DIODE	
D217	1SS133	DIODE	
	or MA165	DIODE	
D218	1SS133	DIODE	
	or MA165	DIODE	
D219	1SS133	DIODE	
	or MA165	DIODE	
D280	1SS133	DIODE,E/EG	
	or MA165	DIODE,E/EG	
R201	QRD161J-102	RESISTOR	1KΩ,1/6W
R202	QRD161J-223	RESISTOR	22KΩ,1/6W
R203	QRD161J-223	RESISTOR	22KΩ,1/6W
R204	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R205	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R206	QRD161J-101	RESISTOR	100Ω,1/6W
R207	QVZ3518-332AZ	V RESISTOR,LP VIDEO EQ	3.3KΩ
	or QVZ3523-332AZ	V RESISTOR	3.3KΩ
R208	QVZ3518-332AZ	V RESISTOR,SP VIDEO EQ	3.3KΩ
	or QVZ3523-332AZ	V RESISTOR	3.3KΩ
R209	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R210	QRD161J-621	RESISTOR	620Ω,1/6W
R211	QRD161J-333	RESISTOR	33KΩ,1/6W
R212	QRD161J-153	RESISTOR	15KΩ,1/6W
R213	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R214	QRD161J-391	RESISTOR	390Ω,1/6W
R215	QVZ3518-681AZ	V RESISTOR,SP REC COLOR LEVEL	680Ω
	or QVZ3523-681AZ	V RESISTOR	680Ω
R216	QRD161J-103	RESISTOR	10KΩ,1/6W
R217	QRD161J-103	RESISTOR	10KΩ,1/6W
R218	QRD161J-102	RESISTOR	1KΩ,1/6W
R219	QRD161J-123	RESISTOR	12KΩ,1/6W
R220	QRD161J-273	RESISTOR	27KΩ,1/6W
R221	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R222	QVZ3518-681AZ	V RESISTOR,LP REC COLOR LEVEL	680Ω
	or QVZ3523-681AZ	V RESISTOR	680Ω
R227	QRD121J-391S	RESISTOR	390Ω,1/2W
R229	QRD161J-123	RESISTOR	12KΩ,1/6W
R230	QRD161J-103	RESISTOR	10KΩ,1/6W
R240	QRD161J-271	RESISTOR	270Ω,1/6W
R242	QRD161J-102	RESISTOR	1KΩ,1/6W
R243	QRD161J-102	RESISTOR	1KΩ,1/6W
R244	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R245	QRD161J-102	RESISTOR	1KΩ,1/6W
R247	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R248	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R249	QRD161J-681	RESISTOR	680Ω,1/6W
R250	QRD161J-750	RESISTOR	75Ω,1/6W
R251	QRD161J-750	RESISTOR	75Ω,1/6W
R252	QRD161J-103	RESISTOR	10KΩ,1/6W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R256	QRD161J-242	RESISTOR	2.4KΩ,1/6W
R257	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R258	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R263	QRD161J-681	RESISTOR	680Ω,1/6W
R264	QRD161J-331	RESISTOR	330Ω,1/6W
R265	QRD161J-821	RESISTOR	820Ω,1/6W
R267	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R268	QRD161J-101	RESISTOR	100Ω,1/6W
R269	QRD161J-102	RESISTOR	1KΩ,1/6W
R280	QRD161J-914	RESISTOR,E/EG	910KΩ,1/6W
R281	QRD161J-681	RESISTOR,E/EG	680Ω,1/6W
R282	QRD161J-391	RESISTOR,E/EG	390Ω,1/6W
R283	QRD161J-104	RESISTOR,E/EG	100KΩ,1/6W
R284	QRD161J-273	RESISTOR,E/EG	27KΩ,1/6W
R285	QRD161J-103	RESISTOR,E/EG	10KΩ,1/6W
R286	QRD161J-333	RESISTOR,E/EG	33KΩ,1/6W
C201	QCVB1CN-103	CAPACITOR	0.01μF,16V
C202	QCSB1HJ-390	CAPACITOR	39PF,50V
C203	QCVB1CN-103	CAPACITOR	0.01μF,16V
C204	QCVB1CN-103	CAPACITOR	0.01μF,16V
C205	QETC0JM-476	E CAPACITOR	47μF,6.3V
C206	QCVB1CN-103	CAPACITOR	0.01μF,16V
C207	QCVB1CN-103	CAPACITOR	0.01μF,16V
C208	QCVB1CN-103	CAPACITOR	0.01μF,16V
C209	QCVB1CN-103	CAPACITOR	0.01μF,16V
C210	QCVB1CN-103	CAPACITOR	0.01μF,16V
C212	QER61CM-476	E CAPACITOR	47μF,16V
C213	QCVB1CN-103	CAPACITOR	0.01μF,16V
C214	QETC0JM-476	E CAPACITOR	47μF,6.3V
C215	QETC0JM-108	E CAPACITOR	1000μF,6.3V
C216	QETC0JM-476	E CAPACITOR	47μF,6.3V
C217	QCVB1CN-103	CAPACITOR	0.01μF,16V
C224	QETC1CM-476	E CAPACITOR	47μF,16V
C225	QCVB1CN-103	CAPACITOR	0.01μF,16V
C226	QCSB1HK-4R7	CAPACITOR	4.7PF,50V
C227	QCVB1CN-103	CAPACITOR	0.01μF,16V
C229	QCSB1HJ-560	CAPACITOR	56PF,50V
C280	QETC1CM-106	E CAPACITOR,E/EG	10μF,16V
C281	QETC1HM-335	E CAPACITOR,E/EG	3.3μF,50V
C282	QCBB1HJ-471	CAPACITOR,E/EG	470PF,50V
C284	QCVB1CN-103	CAPACITOR,E/EG	0.01μF,16V
C285	QCVB1CN-103	CAPACITOR,E/EG	0.01μF,16V
C286	QCVB1CN-103	CAPACITOR,E/EG	0.01μF,16V
C287	QCVB1CN-103	CAPACITOR,E/EG	0.01μF,16V
C288	QFN31HJ-471	M CAPACITOR,E/EG	470PF,50V
C289	QCSB1HJ-270	CAPACITOR,E/EG	27PF,50V
C290	QCXB1CN-472	CAPACITOR,E/EG	0.0047μF,16V
C291	QCSB1HK-4R7	CAPACITOR,E/EG	4.7PF,50V
C293	QETC0JM-477	E CAPACITOR,E/EG	470μF,6.3V
C294	QCVB1CN-103	CAPACITOR,E/EG	0.01μF,16V
C295	QCBB1HJ-101	CAPACITOR,E/EG	100PF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
L201	PU48530-101K	COIL	100μH
L202	PU59152-180J	COIL	18μH
L203	PU48530-101K	COIL	100μH
L204	PU48530-101K	COIL	100μH
L205	PU48530-101K	COIL	100μH
L206	PU59152-121J	COIL	120μH
L280	PU48530-101K	COIL,E/EG	100μH
L282	PU60655-2	COIL,SECAM DET,E/EG	
EQ201	PU54838	EQUALIZER,E/EG	
	or PU60714	EQUALIZER,E/EG	
CN201	PU58844-6	CONNECTOR	
CN202	PU61044-10	CONNECTOR	
CN251	PU59555-3	CONNECTOR	

– AUDIO SECTION –

#△ REF No.	PART No.	PART NAME, DESCRIPTION
IC1	BA7765AS	IC
	or XRA7765AS	IC
IC2	XRA15218N	IC
	or BA15218N	IC
IC3	XRA15218N	IC
	or BA15218N	IC
IC101	M5223P	IC
IC102	M34225M2-110SP	IC
Q1	2SC1740S(RS)	TRANSISTOR
	or 2SC3199(G)	TRANSISTOR
Q2	2SC1740S(RS)	TRANSISTOR
	or 2SC3199(G)	TRANSISTOR
Q3	DTA114ES	TRANSISTOR
Q4	DTA114ES	TRANSISTOR
Q5	DTA114ES	TRANSISTOR
Q6	DTA114ES	TRANSISTOR
Q7	DTA114ES	TRANSISTOR
Q8	2SC1740S(RS)	TRANSISTOR
	or 2SC3199(G)	TRANSISTOR
Q9	2SD1468S(RS)	TRANSISTOR
Q11	2SA854S(QR)	TRANSISTOR
Q12	DTC114ES	TRANSISTOR
D1	1SS133	DIODE
	or MA165	DIODE
D2	1SS133	DIODE
	or MA165	DIODE
D3	1SS133	DIODE
	or MA165	DIODE
D4	1SS133	DIODE
	or MA165	DIODE
D5	1SS133	DIODE
	or MA165	DIODE
D101	1SS133	DIODE
	or MA165	DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
D102	1SS133	DIODE	
	or MA165	DIODE	
D103	1SS133	DIODE	
	or MA165	DIODE	
D104	1SS133	DIODE	
	or MA165	DIODE	
D105	HZS7.5EB2	ZENER DIODE	
	or RD7.5ES-T1B2	ZENER DIODE	
	or UZ7.5BSB	ZENER DIODE	
R1	QRD161J-223	RESISTOR	22KΩ,1/6W
R3	QRD161J-181	RESISTOR	180Ω,1/6W
R4	QRD161J-274	RESISTOR	270KΩ,1/6W
R5	QRD161J-103	RESISTOR	10KΩ,1/6W
R6	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R7	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R9	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R11	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R12	QRD161J-333	RESISTOR	33KΩ,1/6W
R13	QRD161J-475	RESISTOR	4.7MΩ,1/6W
R14	QRD161J-475	RESISTOR	4.7MΩ,1/6W
R15	QRD161J-475	RESISTOR	4.7MΩ,1/6W
R16	QRD161J-123	RESISTOR	12KΩ,1/6W
R17	QRD161J-333	RESISTOR	33KΩ,1/6W
R18	QRD161J-473	RESISTOR	47KΩ,1/6W
R19	QRD161J-100	RESISTOR	10Ω,1/6W
R20	QVZ3518-473A	V RESISTOR,BIAS	47KΩ
R21	QRD161J-473	RESISTOR	47KΩ,1/6W
R22	QRD161J-6R8	RESISTOR	6.8Ω,1/6W
R24	QRD161J-103	RESISTOR	10KΩ,1/6W
R25	QRD161J-333	RESISTOR	33KΩ,1/6W
R26	QRD161J-181	RESISTOR	180Ω,1/6W
R27	QRD161J-151	RESISTOR	150Ω,1/6W
R29	QRD161J-362	RESISTOR	3.6KΩ,1/6W
R30	QRD161J-243	RESISTOR	24KΩ,1/6W
R31	QRD161J-153	RESISTOR	15KΩ,1/6W
R32	QRD161J-103	RESISTOR	10KΩ,1/6W
R33	QRD161J-393	RESISTOR	39KΩ,1/6W
R34	QRD161J-8R2	RESISTOR	8.2Ω,1/6W
R35	QRD161J-0R0	RESISTOR	0Ω,1/6W
R36	QRD161J-680	RESISTOR	68Ω,1/6W
R37	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R41	QRD161J-102	RESISTOR	1KΩ,1/6W
R42	QRD161J-473	RESISTOR	47KΩ,1/6W
R43	QRD161J-823	RESISTOR	82KΩ,1/6W
R44	QRD161J-202	RESISTOR	2KΩ,1/6W
R45	QRD161J-221	RESISTOR	220Ω,1/6W
R46	QRD161J-273	RESISTOR	27KΩ,1/6W
R47	QRD161J-223	RESISTOR	22KΩ,1/6W
R48	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R49	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R50	QRD161J-154	RESISTOR	150KΩ,1/6W
R51	QRD161J-683	RESISTOR	68KΩ,1/6W
R52	QRD161J-102	RESISTOR	1KΩ,1/6W
R53	QRD161J-362	RESISTOR	3.6KΩ,1/6W
R54	QRD161J-362	RESISTOR	3.6KΩ,1/6W

≠△	REF No.	PART No.	PART NAME, DESCRIPTION	
	R55	QRD161J-0R0	RESISTOR	0Ω,1/6W
	R56	QRD161J-0R0	RESISTOR	0Ω,1/6W
	R59	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R60	QRD161J-331	RESISTOR	330Ω,1/6W
	R61	QRD162J-222	RESISTOR,E/EG	2.2KΩ,1/6W
	R62	QRD161J-0R0	RESISTOR,EK	0Ω,1/6W
	R64	QRD161J-103	RESISTOR	10KΩ,1/6W
	R65	QRD161J-103	RESISTOR	10KΩ,1/6W
	R68	QRD161J-102	RESISTOR	1KΩ,1/6W
	R69	QRD161J-103	RESISTOR	10KΩ,1/6W
	R70	QRD161J-562	RESISTOR	5.6KΩ,1/6W
	R72	QVZ3518-332AZ	V RESISTOR,L EE LEVEL	3.3KΩ
	R73	QRD161J-221	RESISTOR	220Ω,1/6W
	R74	QRD161J-221	RESISTOR	220Ω,1/6W
	R75	QRD161J-123	RESISTOR	12KΩ,1/6W
	R76	QVZ3518-333AZ	V RESISTOR,R EE LEVEL	33KΩ
	R77	QRD161J-221	RESISTOR	220Ω,1/6W
	R78	QRD161J-221	RESISTOR	220Ω,1/6W
	R79	QRD161J-333	RESISTOR	33KΩ,1/6W
	R80	QRD161J-473	RESISTOR,EK	47KΩ,1/6W
	R81	QRD161J-182	RESISTOR	1.8KΩ,1/6W
	R101	QRD161J-123	RESISTOR	12KΩ,1/6W
	R102	QRD161J-123	RESISTOR	12KΩ,1/6W
	R103	QRD161J-562	RESISTOR	5.6KΩ,1/6W
	R104	QRD161J-562	RESISTOR	5.6KΩ,1/6W
	R105	QRD161J-103	RESISTOR	10KΩ,1/6W
	R106	QRD161J-103	RESISTOR	10KΩ,1/6W
	R107	QRD161J-103	RESISTOR	10KΩ,1/6W
	R108	QRD161J-103	RESISTOR	10KΩ,1/6W
	R109	QRD161J-823	RESISTOR	82KΩ,1/6W
	R110	QRD161J-823	RESISTOR	82KΩ,1/6W
	R111	QRD161J-682	RESISTOR	6.8KΩ,1/6W
	R112	QRD161J-682	RESISTOR	6.8KΩ,1/6W
	R113	QRD161J-680	RESISTOR	68Ω,1/6W
	R114	QRD161J-680	RESISTOR	68Ω,1/6W
	R115	QRD161J-102	RESISTOR	1KΩ,1/6W
	R116	QRD161J-102	RESISTOR	1KΩ,1/6W
	R117	QRD161J-152	RESISTOR	1.5KΩ,1/6W
	R118	QRD161J-132	RESISTOR	1.3KΩ,1/6W
	R120	QRD161J-333	RESISTOR	33KΩ,1/6W
	R121	QRD161J-333	RESISTOR	33KΩ,1/6W
	R123	QRD161J-0R0	RESISTOR	0Ω,1/6W
	R124	QRD161J-102	RESISTOR	1KΩ,1/6W
	R125	QRD161J-102	RESISTOR	1KΩ,1/6W
	R126	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R127	QRD161J-103	RESISTOR	10KΩ,1/6W
	C1	QFLC1HJ-122Z	M CAPACITOR	0.0012μF,50V
	C2	QFLC1HJ-122Z	M CAPACITOR	0.0012μF,50V
	C3	PU60550-105	E CAPACITOR	1μF
	C4	QETC1EM-226	E CAPACITOR	22μF,25V
	C5	QFV11HJ-103	MM CAPACITOR	0.01μF,50V
	C6	QETC1HM-334	E CAPACITOR	0.33μF,50V
	C7	QCC11EJ-222	CAPACITOR	0.0022μF,25V
	C8	QCC11EJ-102	CAPACITOR	0.001μF,25V
	C9	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C10	QCC11CJ-104	CAPACITOR	0.1μF,16V
	C11	QCBB1HJ-331	CAPACITOR	330PF,50V
	C12	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	C13	QCC11EJ-102	CAPACITOR	0.001μF,25V
	C14	QETC1HM-475	E CAPACITOR	4.7μF,50V
	C15	QCC11EJ-102	CAPACITOR	0.001μF,25V
	C16	QEK61EM-336	E CAPACITOR	33μF,25V
	C17	QCC11CJ-104	CAPACITOR	0.1μF,16V
	C18	QEK61HM-105	E CAPACITOR	1μF,50V
	C19	QFV11HJ-183	MMT CAPACITOR	0.018μF,50V
	C20	QFV11HJ-123	MM CAPACITOR	0.012μF,50V
	C22	QEK61HM-335	E CAPACITOR	3.3μF,50V
	C23	QCC11EJ-102	CAPACITOR	0.001μF,25V
	C24	QEK61EM-475	E CAPACITOR	4.7μF,25V
	C25	QCC11EJ-102	CAPACITOR	0.001μF,25V
	C26	QFV71HJ-333	TF CAPACITOR	0.033μF,50V
	C31	QEK61CM-476	E CAPACITOR	47μF,16V
	C32	QEK61CM-476	E CAPACITOR	47μF,16V
	C33	QETC1HM-105	E CAPACITOR	1μF,50V
	C34	QCBB1HJ-151	CAPACITOR	150PF,50V
	C35	QETC1HM-105	E CAPACITOR	1μF,50V
	C36	QETC1HM-105	E CAPACITOR	1μF,50V
	C37	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C38	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C39	QETC1CM-476	E CAPACITOR	47μF,16V
	C40	QEK61CM-106	E CAPACITOR	10μF,16V
	C41	QEK61CM-106	E CAPACITOR	10μF,16V
	C42	QETC1CM-476	E CAPACITOR	47μF,16V
	C44	QCC11EJ-103	CAPACITOR	0.01μF,25V
	C45	QCXC1CM-472	CAPACITOR,E/EG	0.0047μF,16V
	C101	QCC11CJ-104	CAPACITOR	0.1μF,16V
	C102	QCC11CJ-104	CAPACITOR	0.1μF,16V
	C103	QEK61CM-336	E CAPACITOR	33μF,16V
	C104	QEK61CM-476	E CAPACITOR	47μF,16V
	C105	QEK61CM-336	E CAPACITOR	33μF,16V
	C106	QEK61CM-106	E CAPACITOR	10μF,16V
	C107	QCC11CJ-104	CAPACITOR	0.1μF,16V
	C108	QEK61HM-105	E CAPACITOR	1μF,50V
	C109	QEK61CM-106	E CAPACITOR	10μF,16V
	C110	QCBB1HJ-221	CAPACITOR	220PF,50V
	C111	QCBB1HJ-221	CAPACITOR	220PF,50V
	L1	PU58308-103J	COIL	10mH
	L2	PU48530-471J	COIL	470μH
	L101	PU48530-101J	COIL	100μH
	L102	PU48530-101J	COIL	100μH
△	T1	PU60304	OSC TRANSFORMER	
△	T2	PU60303	OSC TRANSFORMER	
	SLD1	PQ42581	PRE AMP SHIELD1	

≠△	REF No.	PART No.	PART NAME, DESCRIPTION	
△	CF101	PEVB0352	RESONATOR	
	CN1	PU58844-2	CONNECTOR	
	CN2	PU58844-4	CONNECTOR	
	CN3	PU59555-3	CONNECTOR	
	CN4	PU59555-6	CONNECTOR	
	CN5	PU59555-5	CONNECTOR	
	CN6	PU59555-5	CONNECTOR	
	CN7	PU60417-3	CONNECTOR,EK	
	CN7	PU60417-4	CONNECTOR,E/EG	
	CN9	PU59555-5	CONNECTOR,EK	
△	CP1	ICP-N10	CIRCUIT PROTECTOR	
△	CP101	ICP-N10	CIRCUIT PROTECTOR	

– MECHACON SECTION –

≠△	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC601	M37524M4-114SP	IC	
	IC602	CAT35C104P-004	IC,EK	
	IC602	S-6731A-021	IC,E/EG	
		or CAT35C104P-021	IC,E/EG	
	Q601	2SB1425(EU)	TRANSISTOR	
	Q602	DTC114ES	TRANSISTOR	
	Q603	DTC114WS	TRANSISTOR	
	D601	1SS133	DIODE	
		or MA165	DIODE	
	D602	HZS7.5EB2	ZENER DIODE	
		or MTZ7.5B	ZENER DIODE	
		or UZ7.5BSB	ZENER DIODE	
	D603	1SS133	DIODE	
		or MA165	DIODE	
	D604	1SS133	DIODE	
		or MA165	DIODE	
	D605	1SS133	DIODE	
		or MA165	DIODE	
	D606	11ES2	DIODE	
		or ERA15-02	DIODE	
		or S5688G	DIODE	
		or 1SR139-200	DIODE	
	D607	11ES2	DIODE	
		or ERA15-02	DIODE	
		or S5688G	DIODE	
		or 1SR139-200	DIODE	
	R420	QVZ3518-684	V RESISTOR,PB SW POINT	680KΩ
	R601	QRD161J-681	RESISTOR	680Ω,1/6W
	R602	QRD161J-105	RESISTOR	1MΩ,1/6W
	R603	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R604	QRD161J-103	RESISTOR	10KΩ,1/6W
	R605	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R606	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R607	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R608	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R609	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R610	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R611	QRD161J-102	RESISTOR	1KΩ,1/6W
	R612	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R613	QRD161J-332	RESISTOR	3.3KΩ,1/6W
	R614	QRD161J-332	RESISTOR	3.3KΩ,1/6W
	R615	QRD161J-103	RESISTOR	10KΩ,1/6W
	R616	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R617	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R618	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R619	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R620	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R621	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R622	QRD161J-102	RESISTOR	1KΩ,1/6W
	R623	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R624	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R625	QRD161J-102	RESISTOR	1KΩ,1/6W
	R626	QRD161J-102	RESISTOR	1KΩ,1/6W
	R627	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R628	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R629	QRD161J-102	RESISTOR	1KΩ,1/6W
	R630	QRD161J-102	RESISTOR	1KΩ,1/6W
	R631	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R632	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R633	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R634	QRD161J-471	RESISTOR	470Ω,1/6W
	R635	QRD161J-333	RESISTOR	33KΩ,1/6W
	R636	QRD161J-103	RESISTOR	10KΩ,1/6W
	R637	QRD161J-822	RESISTOR	8.2KΩ,1/6W
	R638	QRD161J-333	RESISTOR	33KΩ,1/6W
	R639	QRD161J-103	RESISTOR	10KΩ,1/6W
	R640	QRD161J-303	RESISTOR	30KΩ,1/6W
	R641	QRD161J-224	RESISTOR	220KΩ,1/6W
	R642	QRD161J-563	RESISTOR	56KΩ,1/6W
	R643	QRD161J-154	RESISTOR	150KΩ,1/6W
	R644	QRD161J-103	RESISTOR	10KΩ,1/6W
	R645	QRD161J-103	RESISTOR	10KΩ,1/6W
	R646	QRD161J-103	RESISTOR	10KΩ,1/6W
	R647	QRD161J-103	RESISTOR	10KΩ,1/6W
	R648	QRD161J-152	RESISTOR	1.5KΩ,1/6W
	R649	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R650	QRD161J-821	RESISTOR	820Ω,1/6W
	R651	QRD161J-272	RESISTOR	2.7KΩ,1/6W
	R652	QRD161J-561	RESISTOR	560Ω,1/6W
	R655	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R656	QRD161J-102	RESISTOR	1KΩ,1/6W
	R851	QRD161J-0R0	RESISTOR	0Ω,1/6W
	R852	QRD161J-0R0	RESISTOR	0Ω,1/6W
	C601	QCFB1EZ-223	CAPACITOR	0.022μF,25V
	C602	QEK61EM-335	E CAPACITOR	3.3μF,25V
	C603	QEK61HM-105	E CAPACITOR	1μF,50V
	C604	QEK60JM-107	E CAPACITOR	100μF,6.3V

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	C605	QCBB1HJ-121	CAPACITOR	120PF,50V
	C606	QCBB1HJ-471	CAPACITOR	470PF,50V
	C607	QCSB1HJ-100	CAPACITOR	10PF,50V
	C608	QCVB1CN-103	CAPACITOR	0.01μF,16V
	L601	PU59152-2R2J	COIL	2.2μH
	L851	PU59152-1R0J	COIL	1μH
	L852	PU59152-R22J	COIL	0.22μH
	K851	PU60281-4	FERRITE BEADS	
△	CF601	PEVB0340	RESONATOR	
△	TH801	PESC1041	POSI THERMISTOR	
	CN451	PEMC0794-015Z	WIRE TRAP	
	CN452	PEMC0794-015Z	WIRE TRAP	
	CN601	PEMC0722-017	WIRE TRAP	
	CN602	PU59555-4	CONNECTOR	
	CN603	PU59555-11	CONNECTOR	
	CN701	PEMC0823-009	CONNECTOR(BOARD TO BOARD)	
	CN702	PEMC0823-009	CONNECTOR(BOARD TO BOARD),E/EG	
	CN703	PEMC0823-009	CONNECTOR(BOARD TO BOARD)	
	CN704	PU59555-4	CONNECTOR,E/EG	
	CN705	PU58844-2	CONNECTOR,EK	
	CN802	PU60417-4	CONNECTOR	
	CN803	PU59555-3	CONNECTOR,EK	
△	CP601	ICP-N20	CIRCUIT PROTECTOR	

- REGULATOR SECTION -

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC801	UPC2405HF	IC	
		or LM2940CT-5.0	IC	
	Q801	2SB1425(EU)	TRANSISTOR	
	Q802	2SD2159(UV)	TRANSISTOR	
	Q803	2SB941P	TRANSISTOR	
		or 2SA1488	TRANSISTOR	
	Q804	2SC1740S(Q)	TRANSISTOR	
	Q805	2SC1740S	TRANSISTOR	
	Q806	2SA933S	TRANSISTOR	
		or 2SA1267(YG)-TJK	TRANSISTOR	
	D801	1SS133	DIODE	
		or MA165	DIODE	
	D802	UZ5.1BSC	ZENER DIODE	
		or MTZV5.1C	ZENER DIODE	
		or RD5.1ES-T1B3	ZENER DIODE	
	R801	QRD161J-103	RESISTOR	10KΩ,1/6W
	R802	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R803	QRD161J-102	RESISTOR	1KΩ,1/6W
	R804	QRD161J-102	RESISTOR	1KΩ,1/6W
	R805	QRD161J-102	RESISTOR	1KΩ,1/6W
	R806	QRD161J-103	RESISTOR	10KΩ,1/6W
	R807	QRD161J-221	RESISTOR	220Ω,1/6W
	R808	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R809	QRD161J-822	RESISTOR	8.2KΩ,1/6W
	R810	QRD161J-471	RESISTOR	470Ω,1/6W
	R811	QVZ3518-471A	V RESISTOR,SWD 5V	470Ω
		or QVZ3523-471A	V RESISTOR	470Ω
	R812	QRD161J-103	RESISTOR	10KΩ,1/6W
	C803	QETC1CM-107	E CAPACITOR	100μF,16V
	C804	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C805	QETC1AM-107	E CAPACITOR	100μF,10V
	C806	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
	C807	QETC1CM-476	E CAPACITOR	47μF,16V
	C808	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C809	QFN31HJ-102	M CAPACITOR	0.001μF,50V
	C811	QETA0JM-477	E CAPACITOR	470μF,6.3V
	K852	PU60281-4	FERRITE BEADS	
	CN801	PU61044-8	WIRE TRAP	

- TERMINAL SECTION -

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q702	2SB810H,J	TRANSISTOR	
	D701	1SS133	DIODE	
		or MA165	DIODE	
	D702	1SS133	DIODE	
		or MA165	DIODE	
	D705	1SS133	DIODE	
		or MA165	DIODE	
	R703	QRD161J-393	RESISTOR	39KΩ,1/6W
	R704	QRD161J-102	RESISTOR	1KΩ,1/6W
	R853	QRD161J-0R0	RESISTOR	0Ω,1/6W
	L701	PU59152-100J	COIL	10μH
	L703	PU59152-100J	COIL	10μH

- ON SCREEN SECTION -

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC902	M52684AP	IC	
	R917	QRD161J-102	RESISTOR	1KΩ,1/6W
	R920	QRD161J-152	RESISTOR	1.5KΩ,1/6W
	R921	QRD161J-271	RESISTOR	270Ω,1/6W
	R922	QRD161J-103	RESISTOR	10KΩ,1/6W
	R923	QRD161J-473	RESISTOR	47KΩ,1/6W
	R924	QRD161J-154	RESISTOR	150KΩ,1/6W
	C921	QCBB1HJ-331	CAPACITOR	330PF,50V
	C922	QFN31HJ-222	M CAPACITOR	0.0022μF,50V
	C923	QER61HM-105	E CAPACITOR	1μF,50V
	C924	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C925	QCSB1HJ-220	CAPACITOR	22PF,50V
	C926	QETC0JM-227	E CAPACITOR	220μF,6.3V
	C927	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C928	QCXB1CN-152	CAPACITOR	0.0015μF,16V
	C932	QETC1HM-335	E CAPACITOR	3.3μF,50V
	L908	PU54223-101K	COIL	100μH
△	CP802	ICP-N10	CIRCUIT PROTECTOR	
△	CF901	PU60086	RESONATOR	
	CN901	PU59555-6	CONNECTOR	
	CN902	PEMC0714-013	CONNECTOR	

- VPS SECTION <EG ONLY> -

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC751	SDA5642	IC,EG	
	R751	QRD161J-824	RESISTOR,EG	820KΩ,1/6W
	R752	QRD161J-101	RESISTOR,EG	100Ω,1/6W
	R753	QRD161J-562	RESISTOR,EG	5.6KΩ,1/6W
	R754	QRD161J-104	RESISTOR,EG	100KΩ,1/6W
	R757	QRD161J-105	RESISTOR,EG	1MΩ,1/6W
	R758	QRD161J-824	RESISTOR,EG	820KΩ,1/6W
	R759	QRD161J-202	RESISTOR,EG	2KΩ,1/6W
	R764	QRD161J-271	RESISTOR,EG	270Ω,1/6W
	R765	QRD161J-271	RESISTOR,EG	270Ω,1/6W
	C758	QFN31HJ-104	M CAPACITOR,EG	0.1μF,50V
	C759	QFN31HJ-333	M CAPACITOR,EG	0.033μF,50V
	C760	QCVB1CN-103	CAPACITOR,EG	0.01μF,16V
	C762	QCBB1HJ-151	CAPACITOR,EG	150PF,50V
	C765	QER61HM-104	E CAPACITOR,EG	0.1μF,50V

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ON SCREEN BOARD ASSEMBLY <17>

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA2	PB10572A2-02	ON SCREEN BOARD ASSY,EG	
	PWBA2	PB10572B2-02	ON SCREEN BOARD ASSY,E	
	PWBA2	PB10572C2-02	ON SCREEN BOARD ASSY,EK	
	IC901	M50554-263SP	IC	
	Q901	DTA114ES	TRANSISTOR	
	Q902	DTA114ES	TRANSISTOR	
	Q903	2SA933S(RS)	TRANSISTOR	
		or 2SA1267(YG)-TJK	TRANSISTOR	
	Q904	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
		or 2SC3311A(RS)	TRANSISTOR	
		or 2SC536SPA(FG)	TRANSISTOR	
	R901	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R902	QRD161J-103	RESISTOR	10KΩ,1/6W
	R903	QRD161J-681	RESISTOR	680Ω,1/6W
	R904	QRD161J-103	RESISTOR	10KΩ,1/6W
	R905	QRD161J-102	RESISTOR	1KΩ,1/6W
	R906	QRD161J-471	RESISTOR	470Ω,1/6W
	R907	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R908	QRD161J-562	RESISTOR	5.6KΩ,1/6W
	R909	QRD161J-392	RESISTOR,EK	3.9KΩ,1/6W
	R909	QRD161J-752	RESISTOR,E/EG	7.5KΩ,1/6W
	R910	QRD161J-362	RESISTOR	3.6KΩ,1/6W
	R911	QRD161J-622	RESISTOR	6.2KΩ,1/6W
	R912	QRD161J-123	RESISTOR	12KΩ,1/6W
	R913	QRD161J-123	RESISTOR	12KΩ,1/6W
	R914	QRD161J-103	RESISTOR	10KΩ,1/6W
	R915	QRD161J-102	RESISTOR	1KΩ,1/6W
	R916	QRD161J-105	RESISTOR	1MΩ,1/6W
	R918	QRD161J-471	RESISTOR	470Ω,1/6W
	R919	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R925	QRD161J-102	RESISTOR	1KΩ,1/6W
	R927	QRD161J-151	RESISTOR	150Ω,1/6W
	C903	QETC0JM-227	E CAPACITOR	220μF,6.3V
	C904	QCVB1CM-103	CAPACITOR	0.01μF,16V
	C905	QAT3123-450	TRIMMER CAPACITOR,DOT CLOCK	45PF
	C906	QCSB1HJ-220	CAPACITOR	22PF,50V
	C907	QCSB1HJ-330	CAPACITOR	33PF,50V
	C908	QCSB1HJ-360	CAPACITOR	36PF,50V
	C909	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C910	QCSB1HJ-270	CAPACITOR	27PF,50V
	C911	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C912	QCSB1HJ-270	CAPACITOR	27PF,50V
	C915	QCT25CH-150	CAPACITOR	15PF

≠△	REF No.	PART No.	PART NAME, DESCRIPTION	
	C916	QAT3123-200	TRIMMER CAPACITOR,BURST CLOCK	20PF
	C917	QCT25CH-5R0	CAPACITOR	5PF
	C918	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C919	QETC0JM-227	E CAPACITOR	220μF,6.3V
	C920	QCVB1CN-103	CAPACITOR	0.01μF,16V
	L901	PU54223-101K	COIL	100μH
	L902	PU58333-220J	COIL	22μH
	L903	PU59152-8R2J	COIL	8.2μH
	L904	PU59152-150J	COIL	15μH
	L905	PU59152-220J	COIL	22μH
	L906	PU59152-220J	COIL	22μH
	L907	PU54223-101K	COIL	100μH
△	X901	PU60908	CRYSTAL RESONATOR	
	TP901	PEMC0727	TEST PIN	
	TP902	PEMC0727	TEST PIN	
	CN903	PEMC0713-113	HOUSING	

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TERMINAL BOARD ASSEMBLY <06>

≠△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB20556A	TERMINAL BOARD ASSY	
	IC1	UPD4052BC	IC	
	Q1	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(G)	TRANSISTOR	
	Q2	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(G)	TRANSISTOR	
	D2	1SS133	DIODE	
		or MA165	DIODE	
	D3	1SS133	DIODE	
		or MA165	DIODE	
	R1	QRD161J-104	RESISTOR	100KΩ,1/6W
	R2	QRD161J-104	RESISTOR	100KΩ,1/6W
	R3	QRD161J-473	RESISTOR	47KΩ,1/6W
	R4	QRD161J-473	RESISTOR	47KΩ,1/6W
	R5	QRD161J-473	RESISTOR	47KΩ,1/6W
	R6	QRD161J-473	RESISTOR	47KΩ,1/6W
	R7	QRD161J-102	RESISTOR	1KΩ,1/6W
	R8	QRD161J-154	RESISTOR	150KΩ,1/6W
	R10	QRD161J-101	RESISTOR	100Ω,1/6W
	R11	QRD161J-102	RESISTOR	1KΩ,1/6W
	R12	QRD161J-154	RESISTOR	150KΩ,1/6W
	R14	QRD161J-101	RESISTOR	100Ω,1/6W
	R15	QRD161J-102	RESISTOR	1KΩ,1/6W
	R16	QRD161J-103	RESISTOR	10KΩ,1/6W
	R17	QRD161J-103	RESISTOR	10KΩ,1/6W
	R18	QRD161J-562	RESISTOR	5.6KΩ,1/6W
	R19	QRD161J-562	RESISTOR	5.6KΩ,1/6W
	R20	QRD161J-221	RESISTOR	220Ω,1/6W
	R21	QRD161J-221	RESISTOR	220Ω,1/6W
	R22	QRD161J-221	RESISTOR	220Ω,1/6W
	R23	QRD161J-221	RESISTOR	220Ω,1/6W
	R24	QRD161J-474	RESISTOR	470KΩ,1/6W
	R25	QRD161J-474	RESISTOR	470KΩ,1/6W
	R101	QRD161J-0R0	RESISTOR	0Ω,1/6W
	RA1	RMLS5J474	RESISTOR ARRAY	
	RA2	RMLS5J474	RESISTOR ARRAY	
	C1	QCBB1HJ-221	CAPACITOR	220PF,50V
	C2	QCBB1HJ-221	CAPACITOR	220PF,50V
	C9	QEK61CM-106	E CAPACITOR	10μF,16V
	C10	QEK61CM-106	E CAPACITOR	10μF,16V
	C11	QEK61CM-106	E CAPACITOR	10μF,16V
	C12	QEK61CM-106	E CAPACITOR	10μF,16V
	C13	QEK61CM-106	E CAPACITOR	10μF,16V
	C14	QEK61CM-106	E CAPACITOR	10μF,16V
	C15	QEP61CM-106	NP E CAPACITOR	10μF,16V
	C16	QEP61CM-106	NP E CAPACITOR	10μF,16V
	C17	QEK61CM-476	E CAPACITOR	47μF,16V
	C18	QEP61CM-106	NP E CAPACITOR	10μF,16V
	C19	QEP61CM-106	NP E CAPACITOR	10μF,16V
	C20	QEK61CM-476	E CAPACITOR	47μF,16V
	C21	QEK61CM-476	E CAPACITOR	47μF,16V
	C31	QCS11HJ-2R0	CAPACITOR	2PF,50V
	C32	QCS11HJ-2R0	CAPACITOR	2PF,50V
	C33	QCSB1HJ-130	CAPACITOR	13PF,50V
	C34	QCSB1HJ-130	CAPACITOR	13PF,50V
	L1	PU59152-3R3J	COIL	3.3μH
	L2	PU59152-3R3J	COIL	3.3μH
	L3	PU59152-1R0J	COIL	1μH
	L4	PU59152-1R0J	COIL	1μH
	L5	PU59152-3R3J	COIL	3.3μH
	L6	PU59152-3R3J	COIL	3.3μH
	L7	PU59152-3R3J	COIL	3.3μH
	L8	PU59152-3R3J	COIL	3.3μH
	L10	PU59152-3R3J	COIL	3.3μH
	L11	PU59152-1R0J	COIL	1μH
	L12	PU59152-1R0J	COIL	1μH
	JP1	PU60894-117	TERMINAL	
	SCW1	SDSF2608Z	SCREW,X3	

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VIDEO UNIT BOARD ASSEMBLY <05>

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10554A-05	VIDEO UNIT BOARD ASSY	
	IC1	JCP0016-2	IC	
	IC2	TL8827P	IC	
	Q1	2SA1576(QRS)	TRANSISTOR	
	Q5	2SA1576(QRS)	TRANSISTOR	
	Q10	2SC4081(QRS)	TRANSISTOR	
	Q11	DTC144WU	TRANSISTOR	
	Q12	DTC144WU	TRANSISTOR	
	Q13	DTC144WU	TRANSISTOR	
	Q14	DTC144WU	TRANSISTOR	
	Q16	DTC144WU	TRANSISTOR	
	Q18	2SC4081(QRS)	TRANSISTOR	
	Q19	2SC4081(QRS)	TRANSISTOR	
	Q20	2SC4081(QRS)	TRANSISTOR	
	Q21	2SA1576(QRS)	TRANSISTOR	
	Q22	2SA1576(QRS)	TRANSISTOR	
	Q23	DTC144WU	TRANSISTOR	
	Q24	2SA1576(QRS)	TRANSISTOR	
	Q25	2SC4081(QRS)	TRANSISTOR	
	Q26	2SC4081(QRS)	TRANSISTOR	
	Q28	2SC4081(QRS)	TRANSISTOR	
	Q29	2SC4081(QRS)	TRANSISTOR	
	Q30	2SC4081(QRS)	TRANSISTOR	
	Q31	DTA124EU	TRANSISTOR	
	Q32	DTC144WU	TRANSISTOR	
	D1	1SS292	DIODE	
	D3	1SS133	DIODE	
		or MA165	DIODE	
	D4	1SS133	DIODE	
		or MA165	DIODE	
	D5	1SS133	DIODE	
		or MA165	DIODE	
	D6	1SS133	DIODE	
		or MA165	DIODE	
	D7	DAN202U	DIODE	
	D10	1SS133	DIODE	
		or MA165	DIODE	
	D11	1SS133	DIODE	
		or MA165	DIODE	
	D12	1SS133	DIODE	
		or MA165	DIODE	
	D14	1SS133	DIODE	
		or MA165	DIODE	
	D15	1SS133	DIODE	
		or MA165	DIODE	
	D17	DAN202U	DIODE	
	D19	1SS133	DIODE	
		or MA165	DIODE	
	D20	1SS133	DIODE	
		or MA165	DIODE	
	D202	DAN202U	DIODE	
	R1	NRSA63J-681N	RESISTOR	680Ω,1/16W
		or NRSA63J-681NC	RESISTOR	680Ω,1/16W
	R2	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
		or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
	R3	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
		or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
	R5	NRSA63J-103N	RESISTOR	10KΩ,1/16W
		or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
	R6	NRSA63J-361N	RESISTOR	360Ω,1/16W
		or NRSA63J-361NC	RESISTOR	360Ω,1/16W
	R10	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R11	NRSA63J-681N	RESISTOR	680Ω,1/16W
		or NRSA63J-681NC	RESISTOR	680Ω,1/16W
	R12	ERS-L39J-102U	RESISTOR	
	R13	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R16	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
		or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W
	R17	NVP1301-222NU	V.RESISTOR,PB Y LEVEL	2.2KΩ
	R18	NRSA63J-333N	RESISTOR	33KΩ,1/16W
		or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
	R19	NRSA63J-823N	RESISTOR	82KΩ,1/16W
		or NRSA63J-823NC	RESISTOR	82KΩ,1/16W
	R21	NRSA63J-331N	RESISTOR	330Ω,1/16W
		or NRSA63J-331NC	RESISTOR	330Ω,1/16W
	R22	NRSA63J-621N	RESISTOR	620Ω,1/16W
		or NRSA63J-621NC	RESISTOR	620Ω,1/16W
	R23	NRSA63J-561N	RESISTOR	560Ω,1/16W
		or NRSA63J-561NC	RESISTOR	560Ω,1/16W
	R24	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
		or NRSA63J-182NC	RESISTOR	1.8KΩ,1/16W
	R25	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
		or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
	R26	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R27	NRSA63J-183N	RESISTOR	18KΩ,1/16W
		or NRSA63J-183NC	RESISTOR	18KΩ,1/16W
	R28	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
		or NRSA63J-822NC	RESISTOR	8.2KΩ,1/16W
	R29	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
		or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
	R30	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
		or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
	R31	NRSA63J-183N	RESISTOR	18KΩ,1/16W
		or NRSA63J-183NC	RESISTOR	18KΩ,1/16W
	R32	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
		or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
	R33	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
		or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	R35	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
		or NRSA63J-332NC	RESISTOR	3.3KΩ,1/16W
	R36	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
		or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
	R37	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
		or NRSA63J-332NC	RESISTOR	3.3KΩ,1/16W
	R38	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
		or NRSA63J-332NC	RESISTOR	3.3KΩ,1/16W
	R40	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R41	NVP1301-223NU	V.RESISTOR,CARRIER	22KΩ
	R42	NVP1301-103NU	V.RESISTOR,DEVIATION	10KΩ
	R43	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
		or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
	R44	NRSA63J-432N	RESISTOR	4.3KΩ,1/16W
		or NRSA63J-432NC	RESISTOR	4.3KΩ,1/16W
	R45	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
		or NRSA63J-122NC	RESISTOR	1.2KΩ,1/16W
	R46	NRSA63J-361N	RESISTOR	360Ω,1/16W
		or NRSA63J-361NC	RESISTOR	360Ω,1/16W
	R47	NRSA63J-103N	RESISTOR	10KΩ,1/16W
		or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
	R48	NRSA63G-102N	RESISTOR	1KΩ,1/16W
		or NRSA63G-102NC	RESISTOR	1KΩ,1/16W
	R49	NRSA63J-103N	RESISTOR	10KΩ,1/16W
		or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
	R51	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R52	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R53	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R54	NRSA63J-242N	RESISTOR	2.4KΩ,1/16W
		or NRSA63J-242NC	RESISTOR	2.4KΩ,1/16W
	R55	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
		or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W
	R56	NVP1301-152NZ	V.RESISTOR,N.C BALANCE	1.5KΩ
	R57	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R58	NRSA63J-821N	RESISTOR	820Ω,1/16W
		or NRSA63J-821NC	RESISTOR	820Ω,1/16W
	R59	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R60	NVP1301-103NU	V.RESISTOR,EE Y LEVEL	10KΩ
	R61	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R62	NRSA63J-334N	RESISTOR	330KΩ,1/16W
		or NRSA63J-334NC	RESISTOR	330KΩ,1/16W
	R63	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R64	NVP1301-332NU	V.RESISTOR,WHITE CLIP	3.3KΩ
	R65	NRSA63J-103N	RESISTOR	10KΩ,1/16W
		or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
	R66	NRSA63J-434N	RESISTOR	430KΩ,1/16W
		or NRSA63J-434NC	RESISTOR	430KΩ,1/16W
	R67	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R68	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R69	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R70	NRSA63J-471N	RESISTOR	470Ω,1/16W
		or NRSA63J-471NC	RESISTOR	470Ω,1/16W
	R71	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
		or NRSA63J-122NC	RESISTOR	1.2KΩ,1/16W
	R72	NRSA63J-333N	RESISTOR	33KΩ,1/16W
		or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
	R73	NRSA63J-333N	RESISTOR	33KΩ,1/16W
		or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
	R74	NRSA63J-681N	RESISTOR	680Ω,1/16W
		or NRSA63J-681NC	RESISTOR	680Ω,1/16W
	R75	NRSA63J-561N	RESISTOR	560Ω,1/16W
		or NRSA63J-561NC	RESISTOR	560Ω,1/16W
	R76	NRSA63J-102N	RESISTOR	1KΩ,1/16W
		or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
	R77	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
		or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
	R78	NRSA63J-681N	RESISTOR	680Ω,1/16W
		or NRSA63J-681NC	RESISTOR	680Ω,1/16W
	R79	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
		or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
	R81	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
		or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
	R83	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
		or NRSA63J-272NC	RESISTOR	2.7KΩ,1/16W
	R84	NRSA63J-105N	RESISTOR	1MΩ,1/16W
		or NRSA63J-105NC	RESISTOR	1MΩ,1/16W
	R85	NRSA63J-155N	RESISTOR	1.5MΩ,1/16W
		or NRSA63J-155NC	RESISTOR	1.5MΩ,1/16W
	R208	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
		or NRSA63J-472NC	RESISTOR	4.7KΩ,1/16W
	C1	NCS31HJ-221A	CAPACITOR	220PF,50V
	C2	NCS31HJ-220A	CAPACITOR	22PF,50V
	C4	NCS31HG-561A	CAPACITOR	560PF,50V
	C8	NCF31CZ-473A	CAPACITOR	0.047μF,16V
	C9	NCS31HJ-150A	CAPACITOR	15PF,50V
	C11	NCS31HJ-680A	CAPACITOR	68PF,50V
	C12	NCS31HJ-220A	CAPACITOR	22PF,50V
	C13	NCS31HG-121A	CAPACITOR	120PF,50V
	C14	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C16	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C17	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C18	NCS31HJ-820A	CAPACITOR	82PF,50V
	C19	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C20	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C21	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C22	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C23	QETC1CM-106	E CAPACITOR	10μF,16V
	C24	QEN61AM-226	NP E CAPACITOR	22μF,10V
		or QENC1AM-226	NP E CAPACITOR	22μF,10V
	C25	QETC1CM-106	E CAPACITOR	10μF,16V
	C26	PU57601-106MA	E CAPACITOR	10μF
	C27	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C29	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C30	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C31	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C32	NCS31HG-201A	CAPACITOR	200PF,50V
	C33	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C34	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C35	NCS31HG-150A	CAPACITOR	15PF,50V
	C36	QCF81CZ-105	CAPACITOR	1μF,16V
	C37	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C38	NCS31HJ-101A	CAPACITOR	100PF,50V
	C40	NCS31HJ-390A	CAPACITOR	39PF,50V
	C41	NCB31CK-333A	CAPACITOR	0.033μF,16V
	C42	QETC0JM-476	E CAPACITOR	47μF,6.3V
	C43	QETC1CM-106	E CAPACITOR	10μF,16V
	C44	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C45	QETC1CM-106	E CAPACITOR	10μF,16V
	C46	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C47	QETC1HM-105	E CAPACITOR	1μF,50V
	C48	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C49	NCB31HK-472A	CAPACITOR	0.0047μF,50V
	C50	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C51	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C52	QETC1HM-105	E CAPACITOR	1μF,50V
	C53	QETC1CM-106	E CAPACITOR	10μF,16V
	C54	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C56	QEN61EM-475	NP E CAPACITOR	4.7μF,25V
		or QENC1EM-475	NP E CAPACITOR	4.7μF,25V
	C57	QETC1EM-335	E CAPACITOR	3.3μF,25V
	C58	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C59	NCF31CZ-473A	CAPACITOR	0.047μF,16V
	C60	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C61	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C62	NCB31CK-333A	CAPACITOR	0.033μF,16V
	C63	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C64	QETC1HM-104	E CAPACITOR	0.1μF,50V
	C65	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C66	QETC1HM-104	E CAPACITOR	0.1μF,50V
	C67	NCF31CZ-473A	CAPACITOR	0.047μF,16V
	C69	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C70	NCF31CZ-473A	CAPACITOR	0.047μF,16V
	C71	NCB31HK-272A	CAPACITOR	0.0027μF,50V
	C72	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C73	QETC1HM-105	E CAPACITOR	1μF,50V
	C74	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C75	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C76	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C77	QETC1HM-104	E CAPACITOR	0.1μF,50V
	C78	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C79	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C80	NCS31HJ-240A	CAPACITOR	24PF,50V
	C82	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C84	NCS31HJ-180A	CAPACITOR	18PF,50V
	C91	NCS31HJ-620A	CAPACITOR	62PF,50V
	C93	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C95	NCS31HJ-120A	CAPACITOR	12PF,50V
	C96	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C97	NCB31CK-333A	CAPACITOR	0.033μF,16V
	C98	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C99	NCS31HJ-180A	CAPACITOR	18PF,50V
	C100	NCS31HG-361A	CAPACITOR	360PF,50V
	C102	QCYA1EK-104	CAPACITOR	0.1μF,25V
	L1	PU58201-121J	COIL	120μH
	L3	PU59152-330J	COIL	33μH
	L4	PU59152-330J	COIL	33μH
	L5	PU59152-330J	COIL	33μH
	L6	PU59152-820J	COIL	82μH
	L7	PU59152-221J	COIL	220μH
	L8	PU48530-101K	COIL	100μH
	L9	PU48530-101K	COIL	100μH
	L10	PU59152-680J	COIL	68μH
	L11	PU48530-101K	COIL	100μH
	L12	PU48530-101K	COIL	100μH
	L13	PU48530-561J	COIL	560μH
	L14	PU48530-222J	COIL	2.2mH
	L15	PU59152-150J	COIL	15μH
	L16	PU59152-820J	COIL	82μH
	LPF1	PELN0477	LOW PASS FILTER	
		or PELN0623	LOW PASS FILTER	
	LPF2	PELN0478	LOW PASS FILTER	
		or PELN0621	LOW PASS FILTER	
	LPF3	PU60128-2	LOW PASS FILTER	
		or PELN0622	LOW PASS FILTER	
	DL1	PU60490	COMB FILTER	
		or PU60222	2H DELAY LINE	
		or PU60340-2	COMB FILTER	
		or PU58971-4	2H DELAY LINE	
△	X1	PEVB0386	CRYSTAL RESONATOR	
	SLD1	PQ45174	SHIELD PLATE	
	SLD2	PQ45173	SHIELD CASE	
	CN1	PEMC0712-114	PIN HEADER	
	CN2	PEMC0712-113	PIN HEADER	
	CN3	PEMC0712-113	PIN HEADER	

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TUNER UNIT BOARD ASSEMBLY <08>

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10522C	TUNER UNIT BOARD ASSY,E/EG	
	PWBA	PB10522F	TUNER UNIT BOARD ASSY,EK	
	WR1	PW30401-BB09T	COAXIAL CORD,EK	
		or PW30401-BB09S	COAXIAL CORD,EK	
△	TNR1	PERF0066	UHF/VHF TUNER,E/EG	
△	TNR1	PERF0083	UHF TUNER,EK	
	IC1	LA7577V	IC	
	Q1	2SB810H,J	TRANSISTOR	
	Q2	2SD1450S,T	TRANSISTOR	
	Q3	2SD1450S,T	TRANSISTOR	
	Q4	2SD1819A(RS)	TRANSISTOR	
	Q5	2SK381(C)	FE TRANSISTOR	
	Q6	DTC114EU	TRANSISTOR	
	Q7	DTA144EU	TRANSISTOR	
	Q8	2SA1532(C)	TRANSISTOR	
	Q14	2SC3936(BC)	TRANSISTOR,EK	
	Q15	2SD1819A(RS)	TRANSISTOR	
	Q16	DTC144EU	TRANSISTOR,E/EG	
	Q18	DTC144EU	TRANSISTOR	
	Q19	2SD1819A(RS)	TRANSISTOR	
	Q21	2SA1532(C)	TRANSISTOR	
	D1	E-452-2	DIODE	
	D2	HZT33-02	ZENER DIODE	
	D4	MTZ11B	ZENER DIODE	
	R1	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R2	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R3	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R13	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R19	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
	R23	QRD161J-151	RESISTOR	150Ω,1/6W
	R32	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	R33	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R34	NRSA63J-153N	RESISTOR	15KΩ,1/16W
	R41	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R42	NRSA63J-182N	RESISTOR,EK	1.8KΩ,1/16W
	R43	NRSA63J-392N	RESISTOR,EK	3.9KΩ,1/16W
	R44	NRSA63J-471N	RESISTOR,EK	470Ω,1/16W
	R45	NRSA63J-750N	RESISTOR	75Ω,1/16W
	R47	NRSA63J-0R0N	RESISTOR,E/EG	0Ω,1/16W
	R48	NRSA63J-0R0N	RESISTOR,EK	0Ω,1/16W
	R51	QRD161J-331	RESISTOR	330Ω,1/6W
	R52	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R54	NRSA63J-824N	RESISTOR	820KΩ,1/16W
	R59	NRSA63J-151N	RESISTOR,EK	150Ω,1/16W
	R59	NRSA63J-470N	RESISTOR,E/EG	47Ω,1/16W
	R61	NRSA63J-151N	RESISTOR	150Ω,1/16W
	R63	NRSA63J-102N	RESISTOR,EK	1KΩ,1/16W
	R63	NRSA63J-112N	RESISTOR,E/EG	1.1KΩ,1/16W
	R65	NRSA63J-910N	RESISTOR	91Ω,1/16W
	R66	NRSA63J-911N	RESISTOR	910Ω,1/16W
	R67	NRSA63J-331N	RESISTOR	330Ω,1/16W
	R69	NRSA63J-561N	RESISTOR,E/EG	560Ω,1/16W
	R71	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R72	QVZ3518-682	V RESISTOR,RF AGC	6.8KΩ
	R74	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	R76	NRSA63J-103N	RESISTOR,E/EG	10KΩ,1/16W
	R78	NRSA63J-0R0N	RESISTOR,E/EG	0Ω,1/16W
	R82	QRSA08J-270YN	RESISTOR,EK	27Ω,1/10W
	R82	QRSA08J-361YN	RESISTOR,E/EG	360Ω,1/10W
	R83	NRSA63J-242N	RESISTOR,E/EG	2.4KΩ,1/16W
	R83	NRSA63J-272N	RESISTOR,EK	2.7KΩ,1/16W
	R84	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R85	NRSA63J-623N	RESISTOR	62KΩ,1/16W
	R86	NRSA63J-273N	RESISTOR	27KΩ,1/16W
	R87	NRSA63J-681N	RESISTOR	680Ω,1/16W
	R89	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R91	QRSA08J-184YN	RESISTOR	180KΩ,1/10W
	R92	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R93	NRSA63J-123N	RESISTOR	12KΩ,1/16W
	R94	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R95	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R96	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	R97	NRSA63J-822N	RESISTOR,EK	8.2KΩ,1/16W
	R97	NRSA63J-682N	RESISTOR,E/EG	6.8KΩ,1/16W
	R105	NRSA63J-682N	RESISTOR,E/EG	6.8KΩ,1/16W
	R114	NRSA63J-271N	RESISTOR,E/EG	270Ω,1/16W
	C2	NCS31HJ-471A	CAPACITOR	470PF,50V
	C3	QCBB1HK-102	CAPACITOR	0.001μF,50V
	C5	QETF1CM-476	E CAPACITOR	47μF,16V
	C6	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C8	QETF1HM-106	E CAPACITOR	10μF,50V
	C12	QETF1CM-226	E CAPACITOR,EK	22μF,16V
	C12	QETF1CM-476	E CAPACITOR,E/EG	47μF,16V
	C16	QETF1HM-225	E CAPACITOR,EK	2.2μF,50V
	C16	QEK41HM-225	E CAPACITOR,E/EG	2.2μF,50V
	C20	QETF1CM-226	E CAPACITOR,EK	22μF,16V
	C20	QETF1CM-476	E CAPACITOR,E/EG	47μF,16V
	C25	QETF1HM-104	E CAPACITOR	0.1μF,50V
	C31	NCB31HK-102A	CAPACITOR,EK	0.001μF,50V
	C32	NCB31HK-222A	CAPACITOR,EK	0.0022μF,50V
	C33	NCB31HK-102A	CAPACITOR,EK	0.001μF,50V
	C34	NCT06CH-3R0A	CAPACITOR	3PF
	C35	NCT06CH-4R0A	CAPACITOR	4PF
	C37	NCB31HK-102A	CAPACITOR,E/EG	0.001μF,50V
	C37	NRSA63J-0R0N	RESISTOR,EK	0Ω,1/16W
	C39	NCB31HK-102A	CAPACITOR,E/EG	0.001μF,50V
	C39	NCF31HZ-103A	CAPACITOR,EK	0.01μF,50V
	C41	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C42	QETF1CM-476	E CAPACITOR	47μF,16V
	C43	NCB31HK-222A	CAPACITOR	0.0022μF,50V
	C44	QETF1CM-476	E CAPACITOR	47μF,16V
	C47	QFN31HK-683	M CAPACITOR	0.068μF,50V
	C48	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C50	QETF1HM-474	E CAPACITOR	0.47μF,50V
	C51	NCS31HJ-750A	CAPACITOR,E/EG	75PF,50V
	C51	NCT06CH-510A	CAPACITOR,EK	51PF
	C53	NCS31HJ-120A	CAPACITOR,E/EG	12PF,50V
	C53	NCT06CH-100A	CAPACITOR,EK	10PF
	C55	NCB31HK-222A	CAPACITOR	0.0022μF,50V
	C56	QETC1CM-336	E CAPACITOR	33μF,16V
	C58	NCF31HZ-473A	CAPACITOR,E/EG	0.047μF,50V
	C59	NCT06CH-510A	CAPACITOR,E/EG	51PF
	C60	NCF31HZ-103A	CAPACITOR,EK	0.01μF,50V
	C60	NCF31HZ-473A	CAPACITOR,E/EG	0.047μF,50V
	C61	NCS31HJ-331A	CAPACITOR	330PF,50V
	C62	QETF1HM-474	E CAPACITOR	0.47μF,50V
	C63	NCF31HZ-103A	CAPACITOR,E/EG	0.01μF,50V
	C68	QETF1HM-106	E CAPACITOR,E/EG	10μF,50V
	C69	NCB31HK-222A	CAPACITOR	0.0022μF,50V
	C71	QETC1HM-104	E CAPACITOR	0.1μF,50V
	C73	NCB31HK-681A	CAPACITOR	680PF,50V
	C74	NCT06CH-820A	CAPACITOR	82PF
	C100	QCVB1CN-103	CAPACITOR,E/EG	0.01μF,16V
	L2	PU60025-1R1	COIL,E/EG	1.1μH
	L2	PU60025-1R5	COIL,EK	1.5μH
	L3	PU60025-1R5	COIL,E/EG	1.5μH
	L3	PU60025-1R8	COIL,EK	1.8μH
	L4	PU60025-1R8	COIL,E/EG	1.8μH
	L5	PU60025-1R8	COIL,E/EG	1.8μH
	L6	PU59152-6R8J	COIL	6.8μH
	L7	PU59152-6R8J	COIL	6.8μH
	L8	PU59152-8R2J	COIL	8.2μH
	L9	PU59152-120J	COIL,E/EG	12μH
	L9	PU59152-8R2J	COIL,EK	8.2μH
	L10	PU59152-101J	COIL	100μH
	L11	PU59152-220J	COIL,E/EG	22μH
	CF1	PU32990-2	CERAMIC FILTER,E/EG	
	CF1	PU32990-3	CERAMIC FILTER,EK	
	CF3	PU49295	CERAMIC FILTER,E/EG	
	CF4	PU49295-2	N FILTER,E/EG	
	SAW1	PU32987-4	SAW FILTER,EK	
	SAW1	PU35557-7	SAW FILTER,E/EG	
	SAW2	PEVB0390	SAW FILTER,E/EG	
	T1	PELN0444	IF TRANSFORMER,VCO,E/EG	
	T1	PELN0501	COIL,IF TRANSFORMER,VCO,EK	
	T3	PELN0442	COIL,FM DET,E/EG	
	T4	PELN0449	LC TRAP,SYNC TRAP,E/EG	
	SLD1	PQ33906-1-2	SHIELD PLATE	
	CN1	PEMC0825-009	CONNECTOR	
	CN2	PEMC0825-009	CONNECTOR	
	CN3	PEMC0825-009	CONNECTOR(BOARD TO BOARD),E/EG	
	CN6	PU59374	JACK,EK	

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A2 DEMODULATOR BOARD ASSY (E/EG) <14>

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10541A-01	A2 DEMOD BOARD ASSY,E/EG	
	IC1	TDA3800GS	IC	
	Q1	DTC114EK	TRANSISTOR	
	Q2	2SD1292(QR)	TRANSISTOR	
	Q3	FMG9	TRANSISTOR	
	Q4	FMG9	TRANSISTOR	
	Q5	FMG9	TRANSISTOR	
	Q6	FMW1	TRANSISTOR	
	Q7	DTA144EK	TRANSISTOR	
	D2	IMN10	DIODE	
	D3	DA114	DIODE	
	R2	QVZ3518-103	V RESISTOR,STEREO SEPA	10KΩ
	R3	NRSA63J-153N	RESISTOR	15KΩ,1/16W
	R4	QRD181J-561	RESISTOR	560Ω,1/8W
	R5	NRSA63J-821N	RESISTOR	820Ω,1/16W
	R6	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R7	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R8	NRSA63J-154N	RESISTOR	150KΩ,1/16W
	R9	NRSA63J-271N	RESISTOR	270Ω,1/16W
	R10	NRSA63J-273N	RESISTOR	27KΩ,1/16W
	R11	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R12	NRSA63J-103N	RESISTOR	10KΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R13	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R14	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R15	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R16	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R17	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R21	QVZ3518-332	V RESISTOR,L AUDIO LEVEL	3.3KΩ
R22	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R23	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R24	QVZ3518-332	V RESISTOR,R AUDIO LEVEL	3.3KΩ
R25	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R26	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R30	QRD161J-101	RESISTOR	100Ω,1/6W
C1	QEKF1CM-106	E CAPACITOR	10μF,16V
C2	QFN31HK-392	M CAPACITOR	0.0039μF,50V
C3	QFN31HK-392	M CAPACITOR	0.0039μF,50V
C4	QFN31HK-392	M CAPACITOR	0.0039μF,50V
C5	QEKF1CM-106	E CAPACITOR	10μF,16V
C6	QEKF1CM-106	E CAPACITOR	10μF,16V
C7	QETF1CM-476	E CAPACITOR	47μF,16V
C8	QCYA1HK-223	CAPACITOR	0.022μF,50V
C9	QCYA1HK-473	CAPACITOR	0.047μF,50V
C10	QFP31HJ-102	M CAPACITOR	0.001μF,50V
C11	QETA1CM-477	E CAPACITOR	470μF,16V
C12	QCYA1HK-473	CAPACITOR	0.047μF,50V
C13	QEKF1CM-106	E CAPACITOR	10μF,16V
C14	QEKF1CM-106	E CAPACITOR	10μF,16V
C15	QETF1CM-336	E CAPACITOR	33μF,16V
C16	QETA1CM-227	E CAPACITOR	220μF,16V
C17	QEKF1HM-105	E CAPACITOR	1μF,50V
C18	QETF1CM-476	E CAPACITOR	47μF,16V
BPF1	PU58226	BAND PASS FILTER	
CF1	PU52775	CERAMIC FILTER	
CF2	PU52775-2	CERAMIC FILTER	
T1	PU59489	COIL,BILIN DET	
T2	PU59490	COIL,DET BUZZ	
CN1	PEMC0778-114	PIN HEADER	

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AUDIO BOARD ASSEMBLY <09>

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB10476B-02	AUDIO UNIT BOARD ASSY	
IC1	BA7708KS	IC	
IC2	BA15218F	IC	
	or XRA15218F	IC	
IC3	M5278L09	IC	
Q1	2SC4097(QR)	TRANSISTOR	
Q2	2SC4097(QR)	TRANSISTOR	
Q3	2SC4097(QR)	TRANSISTOR	
Q4	2SC4097(QR)	TRANSISTOR	
Q5	DTA114EU	TRANSISTOR	
Q6	DTC114EU	TRANSISTOR	
Q7	2SA1577(QR)	TRANSISTOR	
D1	DAP202U	DIODE	
R1	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R2	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R6	NRSA63J-821N	RESISTOR	820Ω,1/16W
R7	NRSA63J-821N	RESISTOR	820Ω,1/16W
R8	NRSA63J-681N	RESISTOR	680Ω,1/16W
R9	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R10	NRSA63J-112N	RESISTOR	1.1KΩ,1/16W
R11	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R12	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R13	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R14	NRSA63J-225N	RESISTOR	2.2MΩ,1/16W
R15	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R16	NRSA63J-821N	RESISTOR	820Ω,1/16W
R17	NRSA63J-821N	RESISTOR	820Ω,1/16W
R18	NRSA63J-681N	RESISTOR	680Ω,1/16W
R19	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R20	NRSA63J-112N	RESISTOR	1.1KΩ,1/16W
R21	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R22	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R23	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R24	NVP1301-153NU	V RESISTOR,L REC LEVEL	15KΩ
	or NVP1301-333N	V RESISTOR	33KΩ
R25	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R26	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R27	NVP1301-103N	V RESISTOR,L CARRIER	10KΩ
R28	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R29	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R30	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R33	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R34	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R35	NRSA63J-752N	RESISTOR	7.5KΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R36	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R37	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R38	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R39	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R40	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R41	NVP1301-332NU	V RESISTOR,R CARRIER	3.3KΩ
	or NVP1301-472N	V RESISTOR	4.7KΩ
R42	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R43	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R44	NVP1301-153NU	V RESISTOR,R REC LEVEL	15KΩ
	or NVP1301-333N	V RESISTOR	33KΩ
R45	NRSA63J-331N	RESISTOR	330Ω,1/16W
R46	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R47	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R48	NRSA63J-681N	RESISTOR	680Ω,1/16W
R49	NRSA63J-331N	RESISTOR	330Ω,1/16W
R50	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R51	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R52	NRSA63J-680N	RESISTOR	68Ω,1/16W
R53	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R54	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R55	NRSA63J-680N	RESISTOR	68Ω,1/16W
R56	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R57	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R59	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R61	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R62	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R63	NRSA63J-331N	RESISTOR	330Ω,1/16W
R65	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R66	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R67	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R69	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R71	NRSA63J-103N	RESISTOR	10KΩ,1/16W
C1	QEN61EM-475	NP E CAPACITOR	4.7μF,25V
	or QENC1EM-475	NP E CAPACITOR	4.7μF,25V
C2	QEN61EM-475	NP E CAPACITOR	4.7μF,25V
	or QENC1EM-475	NP E CAPACITOR	4.7μF,25V
C4	QFLC1HJ-682Z	M CAPACITOR	0.0068μF,50V
C5	QFLC1HJ-102Z	M CAPACITOR	0.001μF,50V
C6	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	or QFLA1HJ-223Z	M CAPACITOR	0.022μF,50V
	or QFV11HJ-223	MMT CAPACITOR	0.022μF,50V
C7	QETC1HM-106	E CAPACITOR	10μF,50V
C8	QETC1HM-475	E CAPACITOR	4.7μF,50V
C9	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	or QFLA1HJ-223Z	M CAPACITOR	0.022μF,50V
	or QFV11HJ-223	MMT CAPACITOR	0.022μF,50V
C10	QETC1EM-476	E CAPACITOR	47μF,25V
C11	QFV71HJ-153	TF CAPACITOR	0.015μF,50V
	or QFLA1HJ-153Z	M CAPACITOR	0.015μF,50V
	or QFV11HJ-153	MM CAPACITOR	0.015μF,50V
C12	NCB31EK-332A	CAPACITOR	0.0033μF,25V
C13	NCB31HK-102A	CAPACITOR	0.001μF,50V
C14	NCB31HK-122A	CAPACITOR	0.0012μF,50V
C15	NCB31HK-102A	CAPACITOR	0.001μF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C16	QETC1HM-105	E CAPACITOR	1μF,50V
C17	QETC1HM-105	E CAPACITOR	1μF,50V
C18	QEN61EM-475	NP E CAPACITOR	4.7μF,25V
	or QENC1EM-475	NP E CAPACITOR	4.7μF,25V
C19	QEN61EM-475	NP E CAPACITOR	4.7μF,25V
	or QENC1EM-475	NP E CAPACITOR	4.7μF,25V
C20	QETC1HM-475	E CAPACITOR	4.7μF,50V
C21	QETC1HM-475	E CAPACITOR	4.7μF,50V
C22	QETC1EM-476	E CAPACITOR	47μF,25V
C23	QETC1HM-106	E CAPACITOR	10μF,50V
C24	QETC1EM-476	E CAPACITOR	47μF,25V
C25	QETC1HM-475	E CAPACITOR	4.7μF,50V
C26	NCB31HK-152A	CAPACITOR	0.0015μF,50V
C27	QETC1EM-476	E CAPACITOR	47μF,25V
C28	NCB31HK-152A	CAPACITOR	0.0015μF,50V
C29	QETC1EM-476	E CAPACITOR	47μF,25V
C30	QETC1HM-475	E CAPACITOR	4.7μF,50V
C31	QETC1HM-335	E CAPACITOR	3.3μF,50V
C32	QETC1HM-335	E CAPACITOR	3.3μF,50V
C33	QETC1HM-106	E CAPACITOR	10μF,50V
C34	QFLC1HJ-682Z	M CAPACITOR	0.0068μF,50V
C35	QFLC1HJ-102Z	M CAPACITOR	0.001μF,50V
C36	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	or QFLA1HJ-223Z	M CAPACITOR	0.022μF,50V
	or QFV11HJ-223	MMT CAPACITOR	0.022μF,50V
C37	QETC1HM-106	E CAPACITOR	10μF,50V
C38	QETC1HM-475	E CAPACITOR	4.7μF,50V
C39	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	or QFLA1HJ-223Z	M CAPACITOR	0.022μF,50V
	or QFV11HJ-223	MMT CAPACITOR	0.022μF,50V
C40	QETC1EM-476	E CAPACITOR	47μF,25V
C41	QFV71HJ-153	TF CAPACITOR	0.015μF,50V
	or QFLA1HJ-153Z	M CAPACITOR	0.015μF,50V
	or QFV11HJ-153	MM CAPACITOR	0.015μF,50V
C42	NCB31EK-332A	CAPACITOR	0.0033μF,25V
C43	NCB31HK-102A	CAPACITOR	0.001μF,50V
C44	NCB31HK-122A	CAPACITOR	0.0012μF,50V
C45	NCB31HK-102A	CAPACITOR	0.001μF,50V
C46	QETC1HM-335	E CAPACITOR	3.3μF,50V
C47	NCB31EK-103A	CAPACITOR	0.01μF,25V
C48	QETC1EM-476	E CAPACITOR	47μF,25V
C49	NCB31EK-103A	CAPACITOR	0.01μF,25V
C50	QETC1EM-476	E CAPACITOR	47μF,25V
C51	NCB31HK-102A	CAPACITOR	0.001μF,50V
C52	NCB31EK-103A	CAPACITOR	0.01μF,25V
C53	NCB31EK-223A	CAPACITOR	0.022μF,25V
C55	QETC1HM-105	E CAPACITOR	1μF,50V
C56	NCB31HK-102A	CAPACITOR	0.001μF,50V
C57	NCB31EK-103A	CAPACITOR	0.01μF,25V
C58	NCB31EK-103A	CAPACITOR	0.01μF,25V
C59	QETC1EM-476	E CAPACITOR	47μF,25V
C60	NCB31EK-103A	CAPACITOR	0.01μF,25V
C61	QETC1HM-335	E CAPACITOR	3.3μF,50V
C62	QETC1EM-226	E CAPACITOR	22μF,25V
C63	QETC1EM-226	E CAPACITOR	22μF,25V
C64	QETC1EM-476	E CAPACITOR	47μF,25V
C65	QETC1EM-476	E CAPACITOR	47μF,25V

≠△ REF No.	PART No.	PART NAME, DESCRIPTION	
L1	PU48530-101J	COIL	100μH
BPF1	PU60610	BPF(1.4MHZ)	
BPF2	PU60611	BPF(1.8MHZ)	
CN1	PEMC0778-120	PIN HEADER	
CN2	PEMC0778-120	PIN HEADER	

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AUDIO CONTROL HEAD BOARD <12>

PWB1	PB40068	AUDIO CONTROL HEAD BOARD
CN1	PU58844-107	CAP HOUSING

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DEMODULATOR BOARD ASSEMBLY (EK) <14>

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB20476B-01	DEMODULATOR BOARD ASSY,EK	
IC1	M51365SP	IC	
IC2	TA8662N	IC	
IC3	M65109BSP	IC	
	or VC2507	IC	
IC4	SM5807FP	IC	
IC5	UPD6372CX	IC	
IC6	UPC4559C	IC	
IC7	M5201L	IC	
IC8	M5201L	IC	
IC9	UPC4559C	IC	
Q1	2SC3354	TRANSISTOR	
Q3	2SA933S(RS)	TRANSISTOR	
Q4	2SC3313BCTA	TRANSISTOR	
Q5	2SD1292(QR)	TRANSISTOR	
Q7	2SD1450S,T	TRANSISTOR	
Q8	2SD1450S,T	TRANSISTOR	
Q9	2SD1450S,T	TRANSISTOR	
Q10	DTC114ES	TRANSISTOR	
Q11	2SA933S(RS)	TRANSISTOR	
Q12	2SA933S(RS)	TRANSISTOR	
Q13	DTC114ES	TRANSISTOR	
Q14	DTC114ES	TRANSISTOR	
Q15	DTC114ES	TRANSISTOR	
Q16	DTC114ES	TRANSISTOR	
D1	11ES2	DIODE	
D2	RD10ES-T1B3	ZENER DIODE	
D3	RD3.0ES-T1B2	ZENER DIODE	
	or MTZ3.0BT-77	ZENER DIODE	
D4	1SS133	DIODE	
D5	1SS133	DIODE	
D6	1SS133	DIODE	
D7	KV1310A-1	VARI CAP DIODE	
D8	1SS133	DIODE	
R1	QRD161J-101	RESISTOR	100Ω,1/6W
R2	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R3	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R4	QRD161J-470	RESISTOR	47Ω,1/6W
R5	QRD161J-102	RESISTOR	1KΩ,1/6W
R6	QRD161J-680	RESISTOR	68Ω,1/6W
R7	QRD161J-330	RESISTOR	33Ω,1/6W
R8	QRD161J-331	RESISTOR	330Ω,1/6W
R9	QRD161J-824	RESISTOR	820KΩ,1/6W
R10	QRD161J-470	RESISTOR	47Ω,1/6W
R11	QRD161J-561	RESISTOR	560Ω,1/6W
R12	QRD161J-471	RESISTOR	470Ω,1/6W
R13	QRD161J-681	RESISTOR	680Ω,1/6W
R14	QRD161J-681	RESISTOR	680Ω,1/6W
R15	QRD161J-391	RESISTOR	390Ω,1/6W
R16	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R17	QRD161J-912	RESISTOR	9.1KΩ,1/6W
R22	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R23	QRD161J-561	RESISTOR	560Ω,1/6W
R24	QRD161J-153	RESISTOR	15KΩ,1/6W
R25	QRD161J-102	RESISTOR	1KΩ,1/6W
R26	QRD161J-102	RESISTOR	1KΩ,1/6W
R27	QRD161J-103	RESISTOR	10KΩ,1/6W
R28	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R29	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R30	QRD161J-121	RESISTOR	120Ω,1/6W
R31	QRD161J-154	RESISTOR	150KΩ,1/6W
R32	QRD161J-224	RESISTOR	220KΩ,1/6W
R33	QRD161J-471	RESISTOR	470Ω,1/6W
R34	QRD161J-102	RESISTOR	1KΩ,1/6W
R35	QRD161J-103	RESISTOR	10KΩ,1/6W
R36	QRD161J-511	RESISTOR	510Ω,1/6W
R37	QRD161J-102	RESISTOR	1KΩ,1/6W
R38	QRD161J-103	RESISTOR	10KΩ,1/6W
R39	QRD161J-271	RESISTOR	270Ω,1/6W
R40	QRD161J-101	RESISTOR	100Ω,1/6W
R41	QRD161J-103	RESISTOR	10KΩ,1/6W
R42	QRD161J-272	RESISTOR	2.7KΩ,1/6W
R43	QRD161J-102	RESISTOR	1KΩ,1/6W
R44	QRD161J-103	RESISTOR	10KΩ,1/6W
R45	QRD161J-103	RESISTOR	10KΩ,1/6W
R46	QRD161J-681	RESISTOR	680Ω,1/6W
R47	QRD161J-471	RESISTOR	470Ω,1/6W
R48	QRD161J-471	RESISTOR	470Ω,1/6W
R49	QRD161J-471	RESISTOR	470Ω,1/6W
R51	QRD161J-223	RESISTOR	22KΩ,1/6W
R52	QRD161J-223	RESISTOR	22KΩ,1/6W
R53	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R54	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R55	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R56	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R57	QRD161J-103	RESISTOR	10KΩ,1/6W
R58	QRD161J-103	RESISTOR	10KΩ,1/6W
R59	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R60	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R61	QRD161J-512	RESISTOR	5.1KΩ,1/6W
R62	QRD161J-512	RESISTOR	5.1KΩ,1/6W
R63	QRD161J-561	RESISTOR	560Ω,1/6W
R64	QRD161J-561	RESISTOR	560Ω,1/6W
R65	QRD161J-273	RESISTOR	27KΩ,1/6W
R66	QRD161J-273	RESISTOR	27KΩ,1/6W
R67	QRD161J-103	RESISTOR	10KΩ,1/6W
R68	QRD161J-103	RESISTOR	10KΩ,1/6W
R69	QRD161J-432	RESISTOR	4.3KΩ,1/6W
R70	QRD161J-432	RESISTOR	4.3KΩ,1/6W
R71	QRD161J-471	RESISTOR	470Ω,1/6W
R72	QRD161J-471	RESISTOR	470Ω,1/6W
R73	QRD161J-473	RESISTOR	47KΩ,1/6W
R74	QRD161J-473	RESISTOR	47KΩ,1/6W
R75	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R76	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R80	QRD161J-123	RESISTOR	12KΩ,1/6W
R81	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R82	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R83	QRD161J-103	RESISTOR	10KΩ,1/6W
R84	QRD161J-103	RESISTOR	10KΩ,1/6W
R85	QRD161J-103	RESISTOR	10KΩ,1/6W
R86	QRD161J-103	RESISTOR	10KΩ,1/6W
R87	QRD161J-103	RESISTOR	10KΩ,1/6W
R88	QRD161J-103	RESISTOR	10KΩ,1/6W
R89	QRD161J-103	RESISTOR	10KΩ,1/6W
R90	QRD161J-102	RESISTOR	1KΩ,1/6W
R91	QRD161J-103	RESISTOR	10KΩ,1/6W
R95	QRD161J-103	RESISTOR	10KΩ,1/6W
C1	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C2	QCXB1CK-222	CAPACITOR	0.0022μF,16V
C3	QCXB1CK-222	CAPACITOR	0.0022μF,16V
C4	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C5	QCVB1CM-103	CAPACITOR	0.01μF,16V
C6	QETC1HM-474	E CAPACITOR	0.47μF,50V
C7	QETC1HM-105	E CAPACITOR	1μF,50V
C8	QCT25RH-220	CAPACITOR	22PF
C9	QETC1HM-474	E CAPACITOR	0.47μF,50V
C10	QCXB1CK-222	CAPACITOR	0.0022μF,16V
C11	QCVB1CM-103	CAPACITOR	0.01μF,16V
C12	QCF11HP-473	CAPACITOR	0.047μF,50V
C13	QCSB1HJ-100	CAPACITOR	10PF,50V
C14	QFV71HJ-273	TF CAPACITOR	0.027μF,50V
C15	QCVB1CM-103	CAPACITOR	0.01μF,16V
C16	QCBB1HJ-331	CAPACITOR	330PF,50V
C17	QCVB1CM-103	CAPACITOR	0.01μF,16V
C18	QETC1HM-106	E CAPACITOR	10μF,50V
C21	QCVB1CM-103	CAPACITOR	0.01μF,16V
C23	QCVB1CM-103	CAPACITOR	0.01μF,16V
C24	QCVB1CM-103	CAPACITOR	0.01μF,16V
C25	QETC1CM-226	E CAPACITOR	22μF,16V
C26	QCVB1CM-103	CAPACITOR	0.01μF,16V
C27	QETC1HM-474	E CAPACITOR	0.47μF,50V
C28	QETC1HM-474	E CAPACITOR	0.47μF,50V
C29	QCVB1CM-103	CAPACITOR	0.01μF,16V
C30	QCSB1HJ-560	CAPACITOR	56PF,50V
C31	QCSB1HJ-390	CAPACITOR	39PF,50V
C32	QCSB1HJ-180	CAPACITOR	18PF,50V
C33	QAT3123-300	TRIMMER CAPACITOR,CARRIER VCXO	30PF
C34	QETC1HM-474	E CAPACITOR	0.47μF,50V
C35	QCVB1CM-103	CAPACITOR	0.01μF,16V
C36	QCVB1CM-103	CAPACITOR	0.01μF,16V
C37	QCVB1CM-103	CAPACITOR	0.01μF,16V
C38	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
C39	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
C40	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
C41	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
C43	QCBB1HJ-101	CAPACITOR	100PF,50V
C44	QCBB1HJ-101	CAPACITOR	100PF,50V
C45	QCSB1HJ-560	CAPACITOR	56PF,50V
C46	QCSB1HJ-390	CAPACITOR	39PF,50V
C47	QCSB1HJ-510	CAPACITOR	51PF,50V
C49	QETC1HM-105	E CAPACITOR	1μF,50V
C50	QCVB1CM-103	CAPACITOR	0.01μF,16V
C51	QCVB1CM-103	CAPACITOR	0.01μF,16V
C52	QETC1CM-106	E CAPACITOR	10μF,16V
C54	QCBB1HJ-101	CAPACITOR	100PF,50V
C55	QCBB1HJ-101	CAPACITOR	100PF,50V
C56	QETC1CM-106	E CAPACITOR	10μF,16V
C57	QCBB1HJ-121	CAPACITOR	120PF,50V
C58	QCBB1HJ-121	CAPACITOR	120PF,50V
C61	QCVB1CM-103	CAPACITOR	0.01μF,16V
C62	QCVB1CM-103	CAPACITOR	0.01μF,16V
C63	QCVB1CM-103	CAPACITOR	0.01μF,16V
C64	QETC1CM-106	E CAPACITOR	10μF,16V
C65	QETC1HM-105	E CAPACITOR	1μF,50V
C66	QCVB1CM-103	CAPACITOR	0.01μF,16V
C67	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
C68	QCVB1CM-103	CAPACITOR	0.01μF,16V
C69	QETC1CM-106	E CAPACITOR	10μF,16V
C70	QCVB1CM-103	CAPACITOR	0.01μF,16V
C72	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
C73	QETC1CM-476	E CAPACITOR	47μF,16V

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	C75	QETC1CM-476	E CAPACITOR	47μF,16V
	C76	QETC1CM-476	E CAPACITOR	47μF,16V
	C77	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
	C78	QETC1CM-476	E CAPACITOR	47μF,16V
	C79	QETC1CM-476	E CAPACITOR	47μF,16V
	C80	QETC1CM-476	E CAPACITOR	47μF,16V
	C81	QETC1HM-106	E CAPACITOR	10μF,50V
	C82	QETC1HM-106	E CAPACITOR	10μF,50V
	C83	QFN31HJ-332	M CAPACITOR	0.0033μF,50V
	C84	QFN31HJ-332	M CAPACITOR	0.0033μF,50V
	C85	QFN31HJ-472	M CAPACITOR	0.0047μF,50V
	C86	QFN31HJ-472	M CAPACITOR	0.0047μF,50V
	C87	QFN31HJ-683	M CAPACITOR	0.068μF,50V
	C88	QFN31HJ-683	M CAPACITOR	0.068μF,50V
	C89	QETC1HM-335	E CAPACITOR	3.3μF,50V
	C90	QETC1HM-335	E CAPACITOR	3.3μF,50V
	C91	QETC1HM-335	E CAPACITOR	3.3μF,50V
	C93	QCXB1CK-472	CAPACITOR	0.0047μF,16V
	C94	QEK61CM-226	E CAPACITOR	22μF,16V
	C98	QETC1CM-226	E CAPACITOR	22μF,16V
	C99	QETC1HM-106	E CAPACITOR	10μF,50V
	C100	QETC1HM-106	E CAPACITOR	10μF,50V
	L1	PU59152-2R2J	COIL	2.2μH
	L2	PU54223-100J	COIL	10μH
	L3	PU59152-100J	COIL	10μH
	L4	PU54223-100J	COIL	10μH
	L5	PU54223-100J	COIL	10μH
	L6	PU59152-100J	COIL	10μH
	L7	PU54223-821J	COIL	820μH
	L8	PU54223-821J	COIL	820μH
	L9	PU54223-100J	COIL	10μH
	L10	PU54223-100J	COIL	10μH
	BPF1	PU60332	BAND PASS FILTER	
	CF1	PU60774-3	CERAMIC FILTER	
	CF2	PU59242-3	CERAMIC FILTER	
	SAW1	PU60336	SAW FILTER	
△	X1	PU60334	CRYSTAL RESONATOR	
△	X2	PU60335-2	CRYSTAL RESONATOR	
	T1	PU59308	COIL,VCO	
	T2	PU61106	COIL,CLOCK VCO	
	HD1	PW30401-AE50S	COAXIAL CORD	
	CN1	PU58844-2	CONNECTOR	
	CN2	PU59555-5	CONNECTOR	
	CN3	PU59555-4	CONNECTOR	
	CN4	PU59555-3	CONNECTOR	
△	CP1	ICP-F10	CIRCUIT PROTECTOR	
△	CP2	ICP-F10	CIRCUIT PROTECTOR	

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TIMER BOARD ASSEMBLY <20>

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA1	PB10577A1-02	TIMER BOARD ASSY,E/EG	
	PWBA1	PB10577B1-01	TIMER BOARD ASSY,EK	
	IC1	UPD75217CW-089	IC	
	IC2	IC-PST523H-2	IC	
	Q1	2SC3199(G)	TRANSISTOR	
		or 2SC1740S(RS)	TRANSISTOR	
		or 2SC3311A(RS)	TRANSISTOR	
		or 2SC536SPA(FG)	TRANSISTOR	
	Q2	DTC144ES	TRANSISTOR	
	D1	RD9.1ES-T1B2	ZENER DIODE	
	D2	1SS133	DIODE	
	D3	1SS133	DIODE	
	D4	11ES2	DIODE	
	D5	11ES2	DIODE	
	D6	1SS133	DIODE	
	D36	1SS133	DIODE,EK	
	R1	QRD161J-103	RESISTOR	10KΩ,1/6W
	R4	QRD161J-682	RESISTOR	6.8KΩ,1/6W
	R5	QRD161J-333	RESISTOR	33KΩ,1/6W
	R6	QRD161J-333	RESISTOR	33KΩ,1/6W
	R7	QRD161J-102	RESISTOR	1KΩ,1/6W
	R8	QRD161J-103	RESISTOR	10KΩ,1/6W
	R9	QRD161J-103	RESISTOR	10KΩ,1/6W
	R10	QRD161J-103	RESISTOR	10KΩ,1/6W
	R11	QRD161J-103	RESISTOR	10KΩ,1/6W
	R12	QRD161J-333	RESISTOR	33KΩ,1/6W
	R13	QRD161J-271	RESISTOR	270Ω,1/6W
	R14	QRD161J-271	RESISTOR	270Ω,1/6W
	R15	QRD161J-103	RESISTOR	10KΩ,1/6W
	R16	QRD161J-103	RESISTOR	10KΩ,1/6W
	R17	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R25	QRD161J-103	RESISTOR	10KΩ,1/6W
	R26	QRD161J-103	RESISTOR	10KΩ,1/6W
	R30	QRD161J-224	RESISTOR	220KΩ,1/6W
	R31	QRD161J-151	RESISTOR,E/EG	150Ω,1/6W
	R32	QRD161J-27	RESISTOR	270Ω,1/6W
	R33	QRD161J-27	RESISTOR	270Ω,1/6W
	R40	QRD161J-271	RESISTOR	270Ω,1/6W
	R41	QRD161J-103	RESISTOR	10KΩ,1/6W
	R42	QRD161J-561	RESISTOR	560Ω,1/6W
	R43	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R44	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R45	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R49	QRD161J-271	RESISTOR	270Ω,1/6W
	R56	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R57	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R58	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R60	QRD161J-103	RESISTOR	10KΩ,1/6W
	R61	QRD161J-333	RESISTOR	33KΩ,1/6W
	RA1	QRB047J-333	RESISTOR ARRAY	33KΩ,4W
		or QRB049J-333	RESISTOR ARRAY	33KΩ,4W
	RA2	QRB047J-104	NETWORK RESISTOR	100KΩ,4W
		or QRB049J-104	NETWORK RESISTOR	100KΩ,4W
	RA3	QRB077J-104	RESISTOR ARRAY	100KΩ,7W
		or QRB079J-104	NETWORK RESISTOR	100KΩ,7W
	C3	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C4	QER61CM-106	E CAPACITOR	10μF,16V
	C5	PU60676-104	E CAPACITOR,EK	0.1F,5.5V
	C5	QEA40HZ-105	E CAPACITOR (DOUBLE),E/EG	1F,5.5V
		or QEA40HZ-104	E CAPACITOR (DOUBLE),EK	0.1F,5.5V
	C6	QAT3123-200	TRIMMER CAPACITOR,CLOCK	20PF
	C7	QCSB1HJ-120	CAPACITOR	12PF,50V
	C11	QER61CM-106	E CAPACITOR	10μF,16V
	C13	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C15	QCBB1HJ-101	CAPACITOR	100PF,50V
	C16	QCBB1HJ-101	CAPACITOR	100PF,50V
	C17	QCF11HP-473	CAPACITOR	0.047μF,50V
	C18	QER61CM-105	E CAPACITOR	10μF,16V
	C19	QER61CM-105	E CAPACITOR	10μF,16V
	C21	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C22	QCBB1HJ-151	CAPACITOR	150PF,50V
△	X1	PU60226-4	CRYSTAL RESONATOR	
	K1	PU60281-5	FERRITE BEADS	
	CN1	PU59555-11	CONNECTOR	
	CN2	PU60910-12	CONNECTOR	
	CN3	PU59555-6	CONNECTOR	
	CN4	PU60417-3	CONNECTOR,EK	
	CN4	PU60417-4	CONNECTOR,E/EG	
	CN6	PU60910-8	CONNECTOR,EK	
	CN6	PU60910-9	CONNECTOR(WIRE TAPE),E/EG	
△	CP1	ICP-F10	CIRCUIT PROTECTOR	

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SWITCH/DISPLAY BOARD ASSEMBLY <28>

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA2	PB10577A2-02	SWITCH/DISPLAY BOARD ASSY,E/EG	
	PWBA2	PB10577B2-01	SWITCH/DISPLAY BOARD ASSY,EK	
	IC103	MSC7112-01SS	IC	
	Q101	2SK658	FE TRANSISTOR	
	Q201	2SB643S	TRANSISTOR	
	Q202	DTA114ES	TRANSISTOR	
	D102	RD3.6ES-T1B1	ZENER DIODE	
	D201	SLH-34MC3F	LE DIODE	
	D202	SLH-34VC3F	LE DIODE	
	D203	SLH-34MC3F	LE DIODE,E/EG	
	D203	SLH-34VC3F	LE DIODE,EK	
	D204	SLH-34VC3F	LE DIODE,EK	
	D229	1SS133	DIODE	
	R101	QRD161J-102	RESISTOR	1KΩ,1/6W
	R102	QRD161J-102	RESISTOR	1KΩ,1/6W
	R103	QRD161J-102	RESISTOR	1KΩ,1/6W
	R104	QRD161J-273	RESISTOR	27KΩ,1/6W
	R105	QRD161J-333	RESISTOR	33KΩ,1/6W
	R107	QRD161J-102	RESISTOR	1KΩ,1/6W
	R201	QRD161J-271	RESISTOR	270Ω,1/6W
	R202	QRD161J-271	RESISTOR	270Ω,1/6W
	R203	QRD161J-271	RESISTOR	270Ω,1/6W
	R204	QRD161J-271	RESISTOR,EK	270Ω,1/6W
	R206	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R207	QRD161J-822	RESISTOR	8.2KΩ,1/6W
	R217	QRD161J-183	RESISTOR,E/EG	18KΩ,1/6W
	R218	QRD161J-223	RESISTOR,E/EG	22KΩ,1/6W
	R219	QRD161J-473	RESISTOR,E/EG	47KΩ,1/6W
	C101	QCBB1HJ-101	CAPACITOR	100PF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C102	QER61HM-104	E CAPACITOR	0.1μF,50V
C103	QER60JM-336	E CAPACITOR	33μF,6.3V
C104	QCVB1CN-103	CAPACITOR	0.01μF,16V
C105	QER61VM-106	E CAPACITOR	10μF,35V
C115	QCSB1HJ-330	CAPACITOR	33PF,50V
C116	QCSB1HJ-330	CAPACITOR	33PF,50V
C117	QCF11HP-473	CAPACITOR	0.047μF,50V
S2	PU60392-2-2	TACT SWITCH,STOP/EJECT	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S3	PU60392-2-2	TACT SWITCH,FF	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S4	PU60392-2-2	TACT SWITCH,REW	
	or PESW0525-02Z	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S5	PU60392-2-2	TACT SWITCH,A.DUB	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S6	PU60392-2-2	TACT SWITCH,REC/ITR	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S7	PU60392-2-2	TACT SWITCH,PLAY	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S8	PU60392-2-2	TACT SWITCH,PAUSE	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S18	PU60392-2-2	TACT SWITCH,CLOCK/PROG/CH PLUS	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S20	PU60392-2-2	TACT SWITCH,SIMUL	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S21	PU60392-2-2	TACT SWITCH,CANCEL/SKIP/RESET	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S22	PU60392-2-2	TACT SWITCH,REPEAT/STORE	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S23	PU60392-2-2	TACT SWITCH,SELECT/SUMMER	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S24	PU60392-2-2	TACT SWITCH,TIMER(SELECT)	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S25	PU60392-2-2	TACT SWITCH,SET+/TRACK+	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S26	PU60392-2-2	TACT SWITCH,SET-/TRACK-	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S27	PU60392-2-2	TACT SWITCH,SP/LP	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S28	*PU60392-2-2*	*TACT SWITCH,DISP OFF*	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S29	PU60392-2-2	TACT SWITCH,CH SEARCH	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S30	PU60392-2-2	TACT SWITCH,CH SET/VPS	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S402	PU58344	SLIDE SWITCH,TV SOUND,E/EG	
S403	PU58344	SLIDE SWITCH,AUTO/MONO,E/EG	
S403	PU58344	SLIDE SWITCH,NICAM/STD,EK	
S405	PESW0559-02	SLIDE SWITCH,REPEAT	
FDP1	PEDP0058	FLUORESCENT DISPLAY PANEL	
HD1	PQ45220	LED HOLDER	
HD2	PQ33907-1-1	FDP HOLDER (L)	
HD3	PQ33908-1-1	FDP HOLDER (R)	
CN7	PEMC0724-006	CONNECTOR,(BOARD TO BOARD)	
CN8	PU61044-104	CONNECTOR	
CN9	PU59555-4	CONNECTOR	

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JACK BOARD ASSEMBLY <24>

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB20559A-02	JACK BOARD ASSY	
IC1	GP1U541X	IR DETECT UNIT	
D1	SLH-34VC3F	LE DIODE	
R1	PERE0509	V RESISTOR,HEAD PHONE LEVEL	
R2	PERE0510	V RESISTOR,MIC MIX	
R3	PERE0501	V RESISTOR,REC MAIN VOL	
R4	PERE0502	V RESISTOR,REC BALANCE	
R5	QRD162J-271	RESISTOR	270Ω,1/6W
LC3	PU59885-223	N FILTER	
LC4	PU59885-223	N FILTER	
S1	PU60392-2-2	TACT SWITCH,OPERATE	
	or PU60975-2	TACT SWITCH	
	or PESW0525-02	TACT SWITCH	
K1	PU60281-5	FERRITE BEADS	
BKT1	PQ33601-1-1	BRACKET	
CL1	PU59311-2	WIRE CLAMP	
JA4	PU60452-2	MINI JACK	
JA5	PU60664-3	MINI JACK	
CN4	PU59555-5	CONNECTOR	
CN5	PU59555-5	CONNECTOR	
CN6	PU59555-6	CONNECTOR	
CN7	PEMC0723-006	CONNECTOR(BOARD TO BOARD)	

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UPPER DRUM BOARD <41>

#△ REF No.	PART No.	PART NAME, DESCRIPTION
PWB1	PDM3017	BOARD (UPPER DRUM)

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PRE/REC AMP BOARD ASSEMBLY <43>

#△ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB10592A-01	PRE/REC BOARD ASSEMBLY

- AUDIO SECTION -

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
IC1	BA7743FS	IC	
Q1	DTA114EU	TRANSISTOR	
△ Q2	2SA1036K	TRANSISTOR	
D2	DAN202U	DIODE	
R1	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
△ R2	NRVA62D-120N	RESISTOR	12Ω,1/16W
R3	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R4	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R5	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R6	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R7	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R8	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R9	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R12	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R16	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R17	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R18	QRSA08J-912YN	RESISTOR	9.1KΩ,1/10W
R19	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R20	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R21	QRSA08J-561YN	RESISTOR	560Ω,1/10W
C1	QCYA1EK-104	CAPACITOR	0.1μF,25V
C2	QCSA1HJ-101	CAPACITOR	100PF,50V
C3	QCFA1CZ-105	CAPACITOR	1μF,16V
C4	QCSA1HJ-271	CAPACITOR	270PF,50V
C5	QCSA1HJ-821	CAPACITOR	820PF,50V
C6	QCSA1HJ-821	CAPACITOR	820PF,50V
C7	QCSA1HJ-271	CAPACITOR	270PF,50V
C8	QCFA1CZ-105	CAPACITOR	1μF,16V
C9	QER60JM-107	E CAPACITOR	100μF,6.3V
C10	QCYA1EK-103	CAPACITOR	0.01μF,25V
C12	QCFA1CZ-224	CAPACITOR	0.22μF,16V
C13	QCYA1EK-103	CAPACITOR	0.01μF,25V
C14	QCYA1EK-103	CAPACITOR	0.01μF,25V
C15	QCYA1EK-103	CAPACITOR	0.01μF,25V
C16	QER60JM-107	E CAPACITOR	100μF,6.3V
C17	QCYA1EK-103	CAPACITOR	0.01μF,25V
C18	QCYA1EK-103	CAPACITOR	0.01μF,25V
△ L1	PU54223-101J	COIL	100μH
△ L2	PU48530-471J	COIL	470μH

- VIDEO SECTION -

#△ REF No.	PART No.	PART NAME, DESCRIPTION
IC201	AN3386NK-A	IC
Q201	2SA1576(QRS)	TRANSISTOR
Q202	2SC4081(QRS)	TRANSISTOR
Q203	2SC4081(QRS)	TRANSISTOR
Q204	DTC144WU	TRANSISTOR
Q205	DTC144WU	TRANSISTOR
Q206	DTC144WU	TRANSISTOR
D201	1SS133	DIODE
	or MA165	DIODE
D202	1SS133	DIODE
	or MA165	DIODE
D203	MA141K	DIODE
	or DA114	DIODE
D204	1SS133	DIODE
	or MA165	DIODE
D205	1SS133	DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
	or MA165	DIODE	
R201	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R202	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R203	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R204	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R205	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R206	QRSA08J-751YN	RESISTOR	750Ω,1/10W
R207	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R208	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R209	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R210	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R211	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R212	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R214	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R215	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R216	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R217	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R218	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R219	QRD161J-334	RESISTOR	330KΩ,1/6W
R220	QRD161J-103	RESISTOR	10KΩ,1/6W
R221	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
R222	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R223	NRVA02D-4872AY	RESISTOR	48.7KΩ,1/10W
R224	QRSA08J-684YN	RESISTOR	680KΩ,1/10W
R225	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R226	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R227	QRSA08J-361YN	RESISTOR	360Ω,1/10W
R228	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R229	QRSA08J-361YN	RESISTOR	360Ω,1/10W
R230	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R231	QRSA08J-474YN	RESISTOR	470KΩ,1/10W
C201	QEK60JM-476	E CAPACITOR	47μF,6.3V
C202	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C203	QCSA1HJ-681	CAPACITOR	680PF,50V
C204	QCSA1HJ-150	CAPACITOR	15PF,50V
C205	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C206	QCSA1HJ-330	CAPACITOR	33PF,50V
C207	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C208	QCSA1HJ-680	CAPACITOR	68PF,50V
C209	QCSA1HJ-471	CAPACITOR	470PF,50V
C210	QCSA1HJ-160	CAPACITOR	16PF,50V
C211	QCSA1HJ-130	CAPACITOR	13PF,50V
C212	QCSA1HJ-470	CAPACITOR	47PF,50V
C213	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C214	QCSA1HJ-391	CAPACITOR	390PF,50V
C215	QCVB1CN-103	CAPACITOR	0.01μF,16V
C216	QER61CM-476	E CAPACITOR	47μF,16V
C217	QFV11HJ-563	MMT CAPACITOR	0.056μF,50V
C218	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C219	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C220	QCSA1HJ-111	CAPACITOR	110PF,50V
C221	QCSA1HJ-181	CAPACITOR	180PF,50V
C222	QCSA1HJ-131	CAPACITOR	130PF,50V
C223	QCSA1HJ-131	CAPACITOR	130PF,50V
C224	QCY81EK-104	CAPACITOR	0.1μF,25V
C225	QCY81EK-104	CAPACITOR	0.1μF,25V
C226	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C227	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C228	QCY81EK-104	CAPACITOR	0.1μF,25V
C229	QCY81EK-104	CAPACITOR	0.1μF,25V
C230	QER61AM-685	E CAPACITOR	6.8μF,10V
C231	QCF81EZ-224	CAPACITOR	0.22μF,25V
C232	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C234	QCSA1HJ-180	CAPACITOR	18PF,50V
C236	QFV11HJ-333	MMT CAPACITOR	0.033μF,50V
C240	QCYA1EK-683	CAPACITOR	0.068μF,25V
L201	PU54223-101K	COIL	100μH
L202	PU59988-560J	COIL	56μH
L203	PU59988-220JY	COIL	22μH
L204	PU59988-470J	COIL	47μH
L205	PU59988-470J	COIL	47μH
L206	PU59988-121JY	COIL	120μH
L207	PU59988-330J	COIL	33μH
L208	PU54223-470K	COIL	47μH
SLD1	PQ33876-1-1	SHIELD CASE(1)	
SPC1	PU59915-102	SPACER	
CN1	PU59555-103	CONNECTOR	
CN201	PU58844-106	CONNECTOR	
CN202	PU60910-110	CONNECTOR	
CN203	PU59974-11	CONNECTOR	

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SERVO BOARD ASSEMBLY <48>

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB20549A	SERVO BOARD ASSEMBLY	
IC1	HD49733ANT	IC	
	or HD49733NT	IC	
IC5	BA7039	IC	
	or XRA7039	IC	
Q5	2SA1309(QRS)	TRANSISTOR	
Q7	DTC144ES	TRANSISTOR	

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
D1	1SS133	DIODE	
	or MA165	DIODE	
D2	1SS133	DIODE	
	or MA165	DIODE	
D3	1SS133	DIODE	
	or MA165	DIODE	
D4	1SS133	DIODE	
	or MA165	DIODE	
D5	1SS133	DIODE	
	or MA165	DIODE	
D6	1SS133	DIODE	
	or MA165	DIODE	
D7	1SS133	DIODE	
	or MA165	DIODE	
D12	1SS133	DIODE	
	or MA165	DIODE	
D13	1SS133	DIODE	
	or MA165	DIODE	
R1	QRD161J-223	RESISTOR	22KΩ,1/6W
R2	QRD161J-225	RESISTOR	2.2MΩ,1/6W
R3	QRD161J-473	RESISTOR	47KΩ,1/6W
R4	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R5	QRD161J-123	RESISTOR	12KΩ,1/6W
R6	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R7	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R9	QRD161J-105	RESISTOR	1MΩ,1/6W
R10	QRD161J-273	RESISTOR	27KΩ,1/6W
R11	QRD161J-224	RESISTOR	220KΩ,1/6W
R12	QRD161J-105	RESISTOR	1MΩ,1/6W
R13	QRD161J-273	RESISTOR	27KΩ,1/6W
R14	QRD161J-273	RESISTOR	27KΩ,1/6W
R15	QRD161J-335	RESISTOR	3.3MΩ,1/6W
R16	QRD161J-334	RESISTOR	330KΩ,1/6W
R17	QRD161J-822	RESISTOR	8.2KΩ,1/6W
R18	QRD161J-102	RESISTOR	1KΩ,1/6W
R19	QRD161J-274	RESISTOR	270KΩ,1/6W
R20	QRD161J-274	RESISTOR	270KΩ,1/6W
R21	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R22	QRD161J-104	RESISTOR	100KΩ,1/6W
R23	QRD161J-473	RESISTOR	47KΩ,1/6W
R25	QRD161J-102	RESISTOR	1KΩ,1/6W
R26	QRD161J-102	RESISTOR	1KΩ,1/6W
R27	QRD161J-102	RESISTOR	1KΩ,1/6W
R28	QRD161J-102	RESISTOR	1KΩ,1/6W
R29	QRD161J-105	RESISTOR	1MΩ,1/6W
R30	QRD161J-103	RESISTOR	10KΩ,1/6W
R31	QRD161J-474	RESISTOR	470KΩ,1/6W
R32	QRD161J-102	RESISTOR	1KΩ,1/6W
R33	QRD161J-823	RESISTOR	82KΩ,1/6W
R34	QRD161J-821	RESISTOR	820Ω,1/6W
R47	QRD161J-102	RESISTOR	1KΩ,1/6W
R48	QRD161J-102	RESISTOR	1KΩ,1/6W
R49	QRD161J-102	RESISTOR	1KΩ,1/6W
R50	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R51	QRD161J-102	RESISTOR	1KΩ,1/6W
R52	QRD161J-124	RESISTOR	120KΩ,1/6W
C1	QCVB1CM-103	CAPACITOR	0.01μF,16V
C2	QEK61AM-226	E CAPACITOR	22μF,10V
C3	QFV11HJ-224	TF CAPACITOR	0.22μF,50V
C4	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	or QFV11HJ-223	MMT CAPACITOR	0.022μF,50V
C5	QEK61EM-475	E CAPACITOR	4.7μF,25V
C6	QEK61EM-475	E CAPACITOR	4.7μF,25V
C7	QEK61CM-106	E CAPACITOR	10μF,16V
C8	QEK61CM-106	E CAPACITOR	10μF,16V
C9	QFV71HJ-184	TF CAPACITOR	0.18μF,50V
	or QFV11HJ-184	MMT CAPACITOR	0.18μF,50V
C10	QCC31CK-223	CAPACITOR	0.022μF,16V
C11	QCBB1HJ-471	CAPACITOR	470PF,50V
C12	QFN31HJ-682	M CAPACITOR	0.0068μF,50V
	or QFLC1HJ-682Z	M CAPACITOR	0.0068μF,50V
C13	QCBB1HJ-181	CAPACITOR	180PF,50V
C14	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C15	QFV71HJ-563	TF CAPACITOR	0.056μF,50V
	or QFV11HJ-563	MMT CAPACITOR	0.056μF,50V
C16	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C17	QEK61HM-105	E CAPACITOR	1μF,50V
C18	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C19	QCBB1HJ-561	CAPACITOR	560PF,50V
C20	QCBB1HJ-271	CAPACITOR	270PF,50V
C21	QEK61AM-226	E CAPACITOR	22μF,10V
C22	QEK61AM-226	E CAPACITOR	22μF,10V
C23	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C34	QCVB1CM-103	CAPACITOR	0.01μF,16V
C35	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
	or QFV11HJ-104	MM CAPACITOR	0.1μF,50V
C36	QCVB1CM-103	CAPACITOR	0.01μF,16V
C37	QCVB1CM-103	CAPACITOR	0.01μF,16V
C38	QCVB1CM-103	CAPACITOR	0.01μF,16V
C39	QCVB1CM-103	CAPACITOR	0.01μF,16V
C40	QCVB1CM-103	CAPACITOR	0.01μF,16V
C41	QEK61AM-226	E CAPACITOR	22μF,10V
C42	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
	or QFV11HJ-104	MM CAPACITOR	0.1μF,50V
C43	QFV71HJ-473	TF CAPACITOR	0.047μF,50V
	or QFV11HJ-473	MM CAPACITOR	0.047μF,50V
L3	PU59152-270J	COIL	27μH
CN1	PU58844-3	CONNECTOR	
CN2	PU59555-4	CONNECTOR	
CN3	PU60417-4	CONNECTOR	
CN4	PEMC0794-015	WIRE TRAP	
CN5	PEMC0794-015	WIRE TRAP	
CN6	PU59555-3	CONNECTOR	
△ CP1	ICP-F15	CIRCUIT PROTECTOR	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

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DECK TERMINAL BOARD ASSEMBLY <51>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10481E	DECK TERMINAL BOARD ASSEMBLY	
	Q1	PU60625	END SENSOR	
	R3	QRD161J-331	RESISTOR	330Ω,1/6W
	R4	QRD161J-331	RESISTOR	330Ω,1/6W
	R5	QRD161J-331	RESISTOR	330Ω,1/6W
	R8	NTH5D473KB	THERMISTOR	
		or ERT-D2ZHK473S	NEGA THERMISTOR	
		or NTH5D473KA	RESISTOR	
	C1	QCVB1CM-103	CAPACITOR	0.01µF,16V
	PS1	PS5705HR	PH INTERRUPTER	
	PS2	PS5705HR	PH INTERRUPTER	
	CN1	PEMC0722-017	WIRE TRAP	
		or PEMC0753-017	WIRE TRAP	
	CN2	PU60642	CONNECTOR(7PIN)	
	CN3	PU60640	CONNECTOR(4PIN)	

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LOADING MDA BOARD ASSEMBLY <55>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA2	PB10481A2	LOADING MDA BOARD ASSY	
⚠	IC1	BA6418N	IC	
⚠		or XRA6418N	IC	
	C1	QETA1CM-336	E CAPACITOR	33µF,16V
	CN1	PU59555-104	CAP HOUSING	

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CASSETTE HOUSING BOARD <56>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWB1	PB40061	CASSETTE HOUSING BOARD	
	Q2	PN268VI	PHOTO TRANSISTOR	
	D1	UZ5.1BSB	ZENER DIODE	
		or RD5.1ESB2	ZENER DIODE	
	R1	QRD162J-473	RESISTOR	47KΩ,1/6W
	R2	QRD182J-681	RESISTOR	680Ω,1/8W
	R3	QRD122J-102S	RESISTOR	1KΩ,1/2W
	C1	QCC11EJ-103	CAPACITOR	0.01µF,25V
	PHS3	PU60629	CASSETTE SENSOR	
	TH1	ERT-D2FHJ503S	THERMISTOR	
		or ERT-D2FHK503S	THERMISTOR	
	CN2	PU60639	4PIN SOCKET	

SECTION 6
TECHNICAL INFORMATIONS

6.1 CPU pin functions

1. MECHACON CPU pin functin (IC601)

Pin No.	Symbol	I/O format	Label	IN/OUT	Contents
1	Vcc	–	Vcc	–	For the SYSTEM CONTROL, DC 5V (AL 5V)
2	VREF	–	Vref		
3	DA	Analog	CASS SENS	I	CASSETTE IN/OUT DETECT (DET ON: L)
4	PWM	PWM	NC	–	NC
5	Port 6 4	N-ch OPEN DRAIN	FM DET	I	AUTO TRACKING DATA IN
6	3		THERM		THERMIC CORRECTION (CAPSTAN BRAKE TIMING CONTROL)
7	2		MODE SENS A		MECHANISM MODE DETECT
8	1		MODE SENS B		
9	0		MODE SENS C		
10	AN 7	Analog	REC SAFETY		DETECTS ERASE PROTECT TAB (TAB ABSENT: H)
11	6		END SENS		TRAILER TAPE DETECT (DET ON: L)
12	5		APT CTL	I	PICTURE CONTROL
13	4		CAP. V	O	CAPSTAN MOTOR DRIVE VOLTAGE SERVO
14	Port 4 3	N-ch OPEN DRAIN	DRUM. V		DRUM MOTOR DRIVE VOLTAGE SERVO
15	2		LCM 2		LOADING MOTOR CONTROL
16	1		LCM 1		
17	0		DRUM FF	I	REC TIMING CONTROL, DRUM ROTATION DETECT (25 Hz)
18	Port 3 7	N-ch OPEN DRAIN	CTL PULSE	I	MODE DETECT (SP/LP), BLANK DETECT
19	6		CAP REV	O	CAPSTAN ROTATION CONTROL (REV: L)
20	5		V. PULSE	O	V PULSE CONTROL
21	4		HEAD SELECT	O	HEAD SELECT SIGNAL OUTPUT
22	3		PLL DATA	O	TUNING DATA OUTPUT
23	2		REEL FG (SP)	I	REEL ROTATION DETECT/TAPE REMAIN
24	1		REEL FG (TU)		
25	0		SYNC DET		INPUT SIGNAL DETECT (NO SYNC: H)
26	$\overline{\text{INT-1}}$	–	CAP FG	I	MODE (SP/LP) DETECT/BACK SPACE COUNT
27	CN Vss		CN Vss		GND
28	$\overline{\text{RESET}}$		RESET		RESET AT CONNECT VCR TO AC
29	X IN		X IN	I	MAIN SYSTEM CLOCK
30	X OUT		X OUT	O	
31	ø		NC	–	NC
32	Vss		Vss	–	GND
33	Port 5 7	with Input Latch	R PAUSE	I	REMOTE PAUSE CONTROL (PAUSE ON: L)
34	6		INDEX	I/O	VISS DATA WRITE/DETECT
35	5		S. CLK	O	CLOCK
36	4		S. DATA	O	SERVO CONTROL DATA OUTPUT
37	3	High Impedance	RENT	O	RENTAL MODE: L
38	2		AUX		INPUT SIGNAL CONTROL (AUX: L)
39	1		V MUTE	O	VIDEO MUTE: L
40	0		EDIT	O	EDIT MODE: L
41	Port 1 7	N-ch OPEN DRAIN	REC START	O	REC START: L
42	6		H REC START		HI-FI REC START: L
43	5		A ERASE		AUDIO ERASE HEAD ON: L
44	4		FULL E ON		FULL ERASE HEAD ON: L
45	3		P MUTE		PICTURE MUTE CONTROL (MUTE ON: L)
46	2		NC		NC
47	1		POWER ON		POWER ON: L
48	0		HI-FI DET		HI-FI DETECT (DET ON: L)
49	Port 0 7	N-ch OPEN DRAIN	A. MUTE	O	AUDIO MUTE CONTROL (MUTE ON: H)
50	6		AUTO/MAN/SLOW	O	HEAD SELECT SIGNAL OUTPUT
51	5		M DATA	I/O	MEMORY IC CONTROL (DATA READ/WRITE)
52	4		TNR CTL	O	TNR MODE: H
53	3		V. UP	O	CAPSTAN ROTATION SPEED CONTROL (V. UP: H)
54	2		S DATA	O	SERVO CONTROL DATA OUTPUT
55	1		S CLK	O	CLOCK
56	0		M CE	O	MEMORY IC CHIP ENABLE
57	Port 2 7	C MOS	VIDEO	O	VIDEO MODE: L
58	6		DEMOD MUTE	O	DEMOD MUTE CONTROL (MUTE ON: H)
59	5		R REV	O	RETAKE REVERSE: L
60	4		PAUSE	O	CAPSTAN MOTOR SERVO (SERVO MODE: H)
61	3		SERVO		
62	2		T. CLK	I	CLOCK
63	1		T. DATA	I/O	M-CTL/TIMER CPU BUS DATA (16 BIT SERIAL)
64	0		LOCK DET	I	TUNING CONDITION DETECT

Table 6-1-1 MECHACON CPU pin function

2. TIMER CPU pin function (IC1)

PIN NO.	LABEL	IN/OUT	NOTE
1	Sd	OUT	KEY SCAN PULSE OUTPUT
2	NC	OUT	
3	Sb	OUT	KEY SCAN PULSE OUTPUT
4	Sa	OUT	KEY SCAN PULSE OUTPUT
5	POWER DOWN	IN	POWER DOWN DETECT(POWER DOWN:L)
6	DISP/OS CLOCK	OUT	DISPLAY/ON SCREEN DATA TRANSFER CLOCK
7	DISP/OS DATA	OUT	DISPLAY/ON SCREEN SERIAL DATA
8	TEST	IN	TEST POINT(CLOCK ADJUST/FDP CHECK)
9	REMOTE	IN	16BIT REMOTE DATA
10	NC	–	GND
11	CNT PLS	IN	LINEAR TIME COUNTER DATA
12	CNT PLS	IN	LINEAR TIME COUNTER DATA
13	KS 0	IN	KEY SCAN DATA INPUT
14	KS 1	IN	
15	KS 2	IN	
16	KS 3	IN	
17	M/C DATA	IN/OUT	MECHACON/TIMER SERIAL DATA
18	M/C CLOCK	OUT	MECHACON/TIMER DATA TRANSFER CLOCK
19	SDA	IN/OUT	VIDEO PROGRAM SYSTEM SERIAL DATA
20	SCL	OUT	VIDEO PROGRAM SYSTEM DATA TRANSFER CLOCK
21	OS CS	OUT	ON SCREEN IC CHIP SELECT:L
22	OS RESET	OUT	ON SCREEN IC RESET:L
23	DISP CS	OUT	DISPLAY IC CHIP SELECT:L
24	AUDIO INT	IN	AUDIO CONTROL IC CHIP SELECT:L
25	NC	–	
26	SC	OUT	SIMULCAST:H
27	AUDIO CLK	OUT	AUDIO CONTROL SERIAL DATA TRANSFER CLOCK
28	PROG	IN	PROGRAM BLUE BACK MODE:H
29	NC	–	
30	X1	IN	MAIN SYSTEM CLOCK(4.19MHz)
31	X2	OUT	
32	Vss	–	GND
33	XT1	IN	GND
34	NC	–	
35	NC	–	
36	NC	–	
37	NC	–	
38	AUD DATA	OUT	AUDIO CONTROL SERIAL DATA
39	PESET(L)	IN	RESET AT CONNECT VCR TO AC
40	NC	–	
41	NC	–	
42	NC	–	
43	NC	–	
44	NC	–	
45	NC	–	
46	NC	–	
47	NC	–	
48	NC	–	
49	NC	–	
50	Sp	OUT	KEY SCAN PULSE OUTPUT
51	So	OUT	
52	Sn	OUT	
53	Sm	OUT	
54	Si	OUT	
55	Sk	OUT	
56	V LOAD	–	GND
57	V PRE	–	GND
58	Sj	OUT	KEY SCAN PULSE OUTPUT
59	Si	OUT	
60	Sh	OUT	
61	Sg	OUT	
62	Sf	OUT	
63	Se	OUT	
64	VDD	IN	UNSW 5V

Table 6-1-2 TIMER CPU pin function